LECTURES

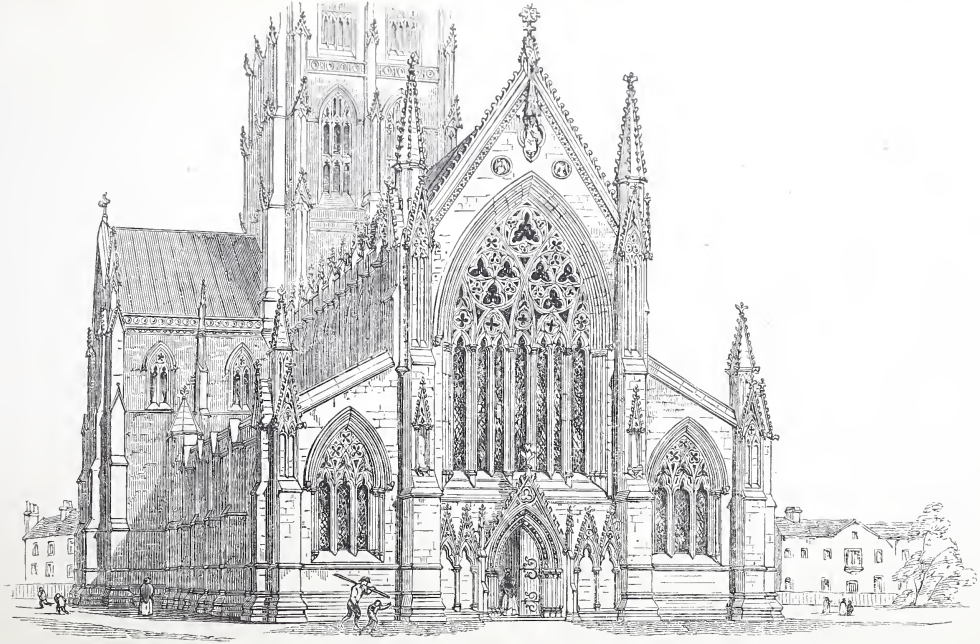
ON CHURCH BUILDING:

WITH SOME PRACTICAL REMARKS ON

BELLS AND CLOCKS.

Note on the Author.

Edmund Beckett Denison (eldest son of Edmund Denison, later Sir Edmund Beckett, 4th baronet) was born on May. 12th 1816 at Carlton Hall, Newark, Notts, and came to Doncaster with his parents in 1818. He was educated there at Dr Sharpe's Academy, Eton, and Trinity College, Cambridge, took his B.A. degree in 1838, being 28th Wrangler of his year, became M.A in 1841 and in 1863 was made an L.L.D. He was called to the Bar in Lincoln's Inn in 1841 and took silk in 1854. He made a reputation as an advocate and was leader of the Parliamentary Bar. In 1851 he took an active part in making Doncaster an important railway centre and in 1853 he collaborated with Sir George Gilbert Scott, the eminent architect in rebuilding St Georges Parish Church, Doncaster after its destruction by fire in that year. He was created 1st Baron Grimthorpe in 1886 and died 29th April 1905, without issue. C:B:L:



West View of St. George's Church, Doncaster.

LECTURES

ON

CHURCH-BUILDING:

WITH SOME PRACTICAL REMARKS ON

BELLS AND CLOCKS.

BY

EDMUND BECKETT DENISON, M.A.

ONE OF HER MAJESTY'S COUNSEL.

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CORRECTIONS.

Page 136, after laſt line but two, add :

At St. Albans on the contrary, where the tower is large enough to admit a very handſome gallery, as at Durham, without ſpoiling the lantern, there is none. The belfry floor was removed ſome years ago without providing any ſubſtitute, and conſequently the peal of bells, which ſeemed to me very good ones though heard under unfavorable circumſtances, can only be tolled in a melancholy way by pulling the clappers, inſtead of making the cheerful noiſe of ringing. This ought to be attended to in the projected reſtoration of this magnificent church, which is ſtated to exceed even the longeſt of our cathedrals in its total length, though now diſgracefully cut in two by a public footpath through the building, beſides other ſpoliations.

Page 251, line 3, for *all-* read *at all.*

Page 269, for the dimenſions of the great Weſtminſter clock bell, ſubſtitute :

Diameter 9 feet 5 inches: *Thickneſs* 9 inches: *Note* E flat. The fourth quarter bell will conſequently be B flat inſtead of B; the third, E flat; the ſecond, F; and the firſt, G.

WOODCUTS.

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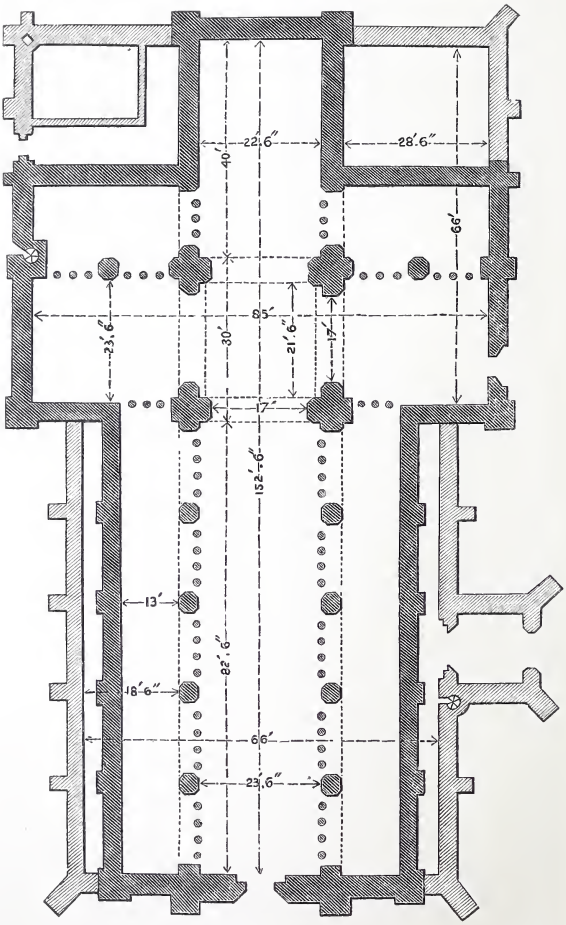
PREFACE.

WHEN I undertook to give ſome lectures on the rebuilding of the Church which was burnt down at Doncaſter three years ago this morning, I had no intention or expectation of appearing as the author of a book on Architecture. Still leſs, when thoſe lectures were publiſhed by the deſire of the Building Committee, and had expanded into what may be called a book, did I expect to be aſked for a ſecond edition of it within ſix months, or any other time. I explained in the former edition how it came to differ as it did from the lectures as they were delivered. This one differs ſtill more, having increaſed to about three times the ſize, beſides being nearly all re-written, and made leſs local and more general in its character. I have however retained the ſtyle and title of lectures;

partly becauſe I did not like to efface what may be called the perſonal identity of the book, though its name is changed to ſuit its more general character; and partly becauſe I prefer that convenient directneſs of addreſs to the dull circumlocutions and elaborate affectations of modeſty, with which it is the faſhion now to exclude the two firſt perſonal pronouns from literary uſe. And for the ſame reaſon, I have written as nearly as poſſible in the ſame ſtyle as I ſhould have ſpoken theſe lectures, ſaying everything in the way which ſeemed to me the moſt likely to be attended to and underſtood. For I do not agree with thoſe who think that the dignity of literature requires writing to be as far removed as poſſible from talking, and ſeem to have compounded their own ſtyle out of modern Acts of Parliament and bad tranſlations of Latin.

42, *Queen Anne Street*,
28th February, 1856.



Ground Plan of the Old and Early Churches.

LECTURE I.

ON GOTHIC ARCHITECTURE.

THE author of the Stones of Venice has ſaid, in his 'Lectures on Architecture and Painting,' that it is impoſſible we can have any real architects now, becauſe no man can be an architect unleſs he is alſo either a ſculptor or a painter, and at preſent we have none who profeſs to combine the two arts in either way. The laſt inſtance of the combination, as far as I know, was in the laſt century, when a painter-architect of the name of Kent enjoyed the patronage of the faſhionable world, and the ridicule of Hogarth, for painting ſome angels with two left legs, inſtead of the uſual terreſtrial arrangement of left and right, beſides other miſdemeanors. It is true, as Mr. Ruſkin ſays, that Giotto and Michael Angelo were celebrated as painters no leſs than as architects, and that Phidias was the great ſculptor as well as the great architect of his time. But three examples do not make a rule any more than three ſwallows a ſummer: nor thirty either, unleſs you are quite ſure that

thirty others cannot be produced on the other ſide. We may think about accepting Mr. Ruſkin's rule when he is prepared with the evidence to ſhow us that the architects of Lincoln, York, Cologne, and a few other celebrated churches in the ſtyle which we call Gothic, were either ſculptors or painters. Of courſe I take for granted that he uſes the word ſculptor in its natural ſenſe, and not in the non-natural ſenſe of a deſigner of architectural ornament. If he does intend the word to have that artificial and unuſual meaning, then undoubtedly his maxim is one of the moſt undeniable of truths, being like many other well-ſounding maxims when reduced to their loweſt terms, nothing but a truiſm; and as ſuch, it need not ſet us running about the world in ſearch of a ſculptor-architect before we undertake to build.

Another well-known writer on architecture ſays, on the contrary, that modern architects are not bad architects, and that the Gothic ſtyle is not a bad ſtyle, but that ſomehow or other the two do not agree together; and therefore he alſo, by an oppoſite road, arrives at the ſame concluſion as Mr. Ruſkin, that it is hopeleſs to attempt to revive Gothic architecture with the help of the preſent race of architects. If this concluſion were really proved or proveable, by whichever of theſe two oppoſite methods, you and I had clearly better ſave ourſelves any further trouble of hearing and delivering lectures on Gothic Architecture, at leaſt in any practical point of view, and hand it over to the antiquaries at once, and regard Saliſbury Cathedral as only a kind of younger and handſomer ſiſter of Stonehenge.

But I am not convinced by Mr. Petit's logic any more than by Mr. Ruſkin's: indeed it is plain that neither of

them are by their own; for Mr. Ruſkin is entitled to the credit of having done more than perhaps anybody elſe to teach the world that if we thoroughly underſtood Gothic principles, we might build Gothic churches and houſes again, though we could not paint a picture or carve a ſtatue which even the Royal Academy would admit, and Mr. Petit has publiſhed ſeveral books with very uſeful illuſtrations of a variety of Gothic buildings of all ages and countries. If they had contented themſelves with delivering the leſs ſtriking but more unqueſtionable dictum, that no modern architect has yet ſucceeded in building a church of which a mediæval builder would not be aſhamed, I ſuppoſe nobody would have been diſpoſed to gainſay it. But it no more follows that Gothic architecture cannot be revived becauſe the beſt architects will admit that they are only learning, and the worſt will never begin to learn, than becauſe none of them profeſs painting and ſculpture as well as architecture. Still leſs is Mr. Petit's inference to be adopted, that as the genius of modern architects has not ſucceeded in any exiſting ſtyle, they would be likely to do better by trying to invent a new one, ſome unknown compound of the Claſſical and the Gothic ſtyles.

Moreover the buſineſs of church building cannot ſtand over indefinitely until either a new and perfect ſtyle ſuitable to the genius of modern architects can be invented, or a new race of pictorial architects ſhall appear and convince the Northern world that they have never yet known what Gothic Architecture really is. When Doncaſter Church was burnt down, there was no doubt that it muſt be built up again in ſome ſtyle or other. Were we to abandon all idea of making it again what it was before, and try ſome-

thing ſo entirely different that no compariſon could be made; or to do the beſt we can to learn the principles on which ſuch buildings were conſtructed 550 years ago, and ſo endeavour to replace it by ſomething equally good? This is a queſtion which the common ſenſe or common feeling of mankind has for ſome years paſt always anſwered in one way. They have not waited to conſider how near an approach we ſhall be able to make to the character of the buildings we have to replace or reſtore, but have determined to make the neareſt approach we can. When the choir of York was burnt down by a madman, the public could have done without it, and fitted up the nave for the ſervice of the Cathedral; but they reſolved at once to rebuild it, though they knew perfectly well that it would be in ſome reſpects inferior to the old choir, but feeling alſo that it would be diſgraceful not to do the beſt they could. When the nave was burnt down ten years afterwards by the careleſſneſs of a clockmaker, that could have been ſtill more eaſily diſpenſed with, as it cannot be ſaid to be of any *uſe* at all. But it was not: again the public and the Chapter of the Cathedral reſolved that ſuch a ruin muſt not remain, or even wait to be reſtored till there ſhould be again architects as capable of building real Gothic as thoſe of the thirteenth or fourteenth century. And ſo again here, although from the difficulties of the times we have not yet got the ſum, or near it, which it was ſaid from the beginning would be required to rebuild this Church properly, ſtill there was ſuch a ſtrong and unanimous feeling expreſſed at the great meeting preſided over by the Archbiſhop ſoon after the fire, in favour of a complete reſtoration in the beſt poſſible ſtyle, that it was quite a matter of courſe that the work ſhould be

begun upon a plan which no one need be aſhamed to finiſh.

Of courſe I know that there are people who have made the profound diſcovery that although we have only raiſed about three quarters of the ſum we want, we have got far more than enough to have built a church capable of holding any probable congregation. When the three hundred pence are raiſed and ſpent, there is never any lack of perſons to raiſe the cry that they might have been given to the poor—that is, given in their way inſtead of our way: forgetting in the firſt place that, however it is ſpent, it goes in finding work for the poor to earn their living by; and forgetting alſo, what is more material to the preſent queſtion, that but for the zeal of thoſe who gave it for the particular object, it would never have been raiſed at all. Some thirty thouſand pounds have been ſubſcribed here to execute a work which the people who ſubſcribed it are determined to have done, and know cannot be done for leſs, or even for ſo little. Does it follow that if we had given out that we did not want to build a church of anything like the character of the old Church, we ſhould have got from the public the ſame ſum, or half, or a quarter of it, to be ſpent on general eccleſiaſtical or charitable purpoſes, for the benefit of the town of Doncaſter? What buſineſs, it would have been ſaid, has the town of Doncaſter, with a Corporation income of £10,000 a year, and a Railway Company having its principal works there, and an income of a million a year, and eſtabliſhing there a 'locomotive' population of its own large enough to form a ſeparate pariſh, to go about the country begging for ſubſcriptions to build churches for them? The public would never have believed it, if

you had told them that the ſhareholders of this ſame Great Northern Railway, the moſt flouriſhing concern of the kind in the kingdom, would neither contribute anything (there being no church rate for the purpoſe) towards the rebuilding of the Church of the pariſh where they own this vaſt property, nor even allow their Directors when they propoſed it, to ſpend as much as the value of a couple of railway engines, or a dozen carriages, in building a church for this population of their own; and that ſanctimonious ſhareholders, and Railway newſpaper editors, and profeſſors of 'liberal opinions' in the Houſe of Commons, would be ſeized with uncontrollable qualms of conſcience at the notion of a Company with ten millions' worth of property making ſpiritual proviſion for their workmen in the only way in which it can be made; and on the ground that half of them muſt be aſſumed not to belong to the Church of England, but to be diſtributed among the Independents, Unitarians, Baptiſts, General and Particular, Primitive Methodiſts, Non Connexion Methodiſts, Weſleyan Methodiſts, Weſleyan Methodiſt Reformers, Quakers, Papiſts, and Latter-day Saints, who appear by the laſt cenſus to conſtitute about the other half of the population of the Doncaſter diſtrict.*

* Conſidering the proverbial repute of joint ſtock companies, it ought to be recorded to their credit, that they have not all been equally 'conſcientious' with the ſhareholders of the Great Northern Railway Company; witneſs the churches at Swindon, Wolverton and Crewe; beſides thoſe built by mining companies in Wales, and by manufacturers of various kinds all over the kingdom for their workmen. In all theſe caſes preciſely the ſame excuſe might have been made for doing nothing, viz. that as it is impoſſible to provide meeting-houſes and miniſters for a dozen different ſects, to which half the population

I do not think it is an inappropriate preface to a ſet of lectures on Church building, before I notice ſome of the objections which have occaſionally been raiſed againſt the building of ſuch churches as this of Doncaſter, to remind you that in all ages and in all countries the love of magnificent building, and above all, of magnificent building for religious purpoſes, appears to be inherent in civilized men. The love of ornamentation indeed, of one kind or another, is inherent in all men, whether civilized or barbarous. Savages cannot ornament their buildings, partly becauſe they have none capable of ornament, but more becauſe they have not yet riſen above the loweſt ſtage of ornamentation, that of regarding their own perſons as the only, or the principal vehicle for ornament—a fact ſuggeſting ſome reflections which I will leave you to make for yourſelves. The next ſtage above that is the laviſhing of ornament upon things for our perſonal uſe only, or to be admired only in connection with ourſelves, as part of our own ſtate and grandeur, a proof of our opulence, or an indication of our peculiar good taſte. I do not mean, of courſe, that all love of ornament of this kind is baſe, or unworthy, or unchriſtian. This, like moſt other things, is a queſtion of degree ; and as you very well know, the ſame ornaments which are becoming to the perſon and the condition of one man or woman would be unbecoming to another ; the plate, the furniture, and the domeſtic ornaments which we ſhould think one houſe bare and ill-furniſhed without, in another would be an inſtan-

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belongs, it is very unfair to provide them for the other half who are willing to avail themſelves of Church of England inſtruction ; in other words, that as you cannot do everything, the only right and conſcientious way is to do nothing.

taneous ſymbol of a vain, pretentious, and vulgar-minded owner.

With theſe, or rather above them, may be ranked ornamental gardens, which Lord Bacon thought, as he did the ſubject of Building itſelf, worthy of a place among his famous *Eſſays*. Gardens (uſing the word in its wideſt ſenſe, of ornamental grounds) are ſeldom kept for the ſole enjoyment of the owner. The vulgar woman in a ſilk gown who expects half-a-ſovereign, and will not refuſe half-a-crown, for driving you through a nobleman's drawing-rooms, will lift up a corner of the dirty cover of the white ſilk ſofa, juſt to ſhow you what fine things my lady has, and with what a magnificent taſte ſhe buys at the ſhop in London. But the gardens are not done up in brown holland; they may be ſeen—thoſe that are moſt worth ſeeing—almoſt any day; and it may be truly ſaid, that the gardens of many grand houſes afford far more pleaſure in the courſe of any given period to the public than to the owner, the public ſeeing them on every fine day, the owner often for only a few weeks or even days in the year.

But of all the arts of ornamentation, the one which (to borrow a well-known phraſe from the utilitarian ſchool) affords the greateſt happineſs to the greateſt number, is beyond all queſtion that which is always called the Queen of the Arts—Architecture; provided of courſe, it is good architecture. I do not pretend to ſay that that has been the reaſon why in all ages and in all civilized nations ſome kind of magnificence in building has been cultivated: but of the fact there is no doubt, with the natural exception of times of diſturbance, or oppreſſion, or the prevalence of ſome peculiar religious fanaticiſm, ſuch as once

deſtroyed many of the fineſt churches in England, and in Scotland left ſcarcely any uninjured by the Puritans, whoſe ſour tyranny ſo diſguſted the nation with the very name of religion that it ſwung into the oppoſite extreme of licentiouſneſs and infidelity under the reſtoration of the good-for-nothing Stewart dynaſty and their next two or three ſucceſſors.

Of the magnificence of the Greek temples you have all heard, even thoſe of you who have no idea what theſe temples were like. Ancient Rome, you know, like modern Rome, was full of grand public buildings, both for religious and for civil purpoſes. The word Egypt will ſuggeſt to you the Pyramids, one of which would barely ſtand in the largeſt ſquare in London; and beſides the Pyramids the Egyptians built temples more vaſt and maſſive than any that the world has ſince beheld, and decorated them with gigantic figures, which we may conſider hideous and deformed, but which are at any rate impoſing from their enormous ſize—always a great element in architectural effect. Thoſe people of the time of Moſes could do ſome things too, which we cannot with all our ſcience and machinery. An officer of the Britiſh Muſeum told me that a London workman had ſpent a whole day and broken twenty-four drills in trying to make a ſingle hole in a ſtatue, which ſome Egyptian maſon had carved and poliſhed 4000 years ago. You heard of the diſcovery of the great marble bulls and other temple decorations at Nineveh, where the prophet Jonah preached. India and China have had for time out of mind an architecture of their own, and decorate their temples and their gods (for you know they make one as well as the other) with a profuſion of ornament, not

quite in European taſte certainly, but yet not in worſe taſte than is diſplayed in many modern buildings in what we conſider the moſt civilized country in the world, viz. our own. Even in the ruined cities of Central America, whoſe very ruins were unknown till lately, architectural magnificence appears to have been cultivated, and chiefly, as elſewhere, in connexion with their religion. Of the continent of Europe it is of courſe unneceſſary to ſpeak; and without entering on the vexed queſtion of how dark 'the dark ages' were, one thing is clear, viz. that they were light enough for building in a way which we have been now for fifty years trying to imitate, and are ſtill a long way off.

But perhaps you will turn round upon me and ſay it was not the perfect, but the imperfect civilization of theſe people of old times, that made them ſpend their time and money in building temples, either to their falſe gods, or under a ſuperſtitious notion that it was the way to pleaſe the true God. Well then, let us ſee whether the love of coſtly buildings diſappears when they are diſconnected from religion. Firſt of all, as I told you juſt now, many of the grandeſt Roman buildings were for merely civil purpoſes, and had nothing at all to do with religion. Again in the middle or dark ages, not only the churches, but all the other buildings of which anything remains, were of the ſame character, more or leſs ornamented, as uſual, according to their ſize and the means of the perſons who built or uſed them. But let us come ſtill nearer home, and ſee what people have done in England for the laſt two centuries, when we certainly cannot be accuſed of throwing away our money from ſuperſtitious motives; and equally little can it be ſaid that there is only one ſtyle of building practiſed by

anybody, and that a coſtly one, ſo that we muſt build expenſively and grandly if we are to build at all.

At nearly the beginning of the period I have taken ſtands St. Paul's Cathedral, which coſt above a million of money; and at the end of it the Houſes of Parliament, which will ſoon have coſt two millions. Thoſe are two tolerably coſtly ſpecimens of public building, the religious one begun in the age of infidelity, the civil one at the very climax of the age of utilitarianiſm, ſhortly after the paſſing of the Reform Bill. At leaſt three quarters of the area of St. Paul's is, and always muſt have been, uſeleſs; and if uſefulneſs only was regarded, it is probable that two legiſlative chambers and ſome committee-rooms and offices could have been built for leſs than £2,000,000, or even the much ſmaller amount of the original eſtimate. The next time you go to London look at St. Pancras Church, the firſt you come to as you go weſtward from the King's Croſs Station. You would be rather diſguſted if we built you ſuch a thing as that here; and yet that church was built at a coſt of about £100,000, by men with their eyes open, and paid for out of a pariſh rate ſpread over I don't know how many years, within the preſent generation. Look again at the great Marylebone Church, a mile further on in the ſame road. You will probably not admire that much more, and it coſt not much leſs than the other. The ſame may be ſaid, only in a ſomewhat leſs degree as to coſtlineſs, if not as to beauty, of the four other rectory churches of the ſame pariſh, all built within the preſent century, in the place of, or rather in addition to, the little barn which figures as the pariſh church of Marylebone in one of Hogarth's pictures, and is now called Marylebone Chapel.

I only mention theſe as quite modern ſpecimens of hundreds of churches built in the ſame ſtyle and at a coſt far exceeding what we are ſpending here, and without the excuſe of their being reſtorations or rebuildings of churches which had been reckoned before among the great and beautiful remains of other ages. I mention them alſo as a few among many proofs that the moment a building is regarded as a public building, it ſeems to have been always, even in the moſt economical times and places, taken for granted that it ought to be made a handſome building, and conſequently a coſtly one. A few hundreds of gentlemen in London, or any other large town, agree to provide themſelves with a houſe of their own, inſtead of going to the tavern, to eat a two-ſhilling dinner in, and read the newspapers. Moſt of them are young, and very few of them are rich, enjoying at home nothing more ſplendid than the dingy finery of lodgings over a ſhop, or the more reſpectable dingineſs without finery, of chambers, or a ſmall houſe in a ſecond-rate ſtreet. But the moment they are agglomerated, they muſt have a new club-houſe, for which the only order given to the architect appears to be that it muſt be ſomething grander, and more decorated, and more ſplendidly furniſhed than the one laſt built for ſome other club. Juſt in the ſame way, Birmingham, and Liverpool, and Bradford, and Leeds, and Preſton, and, I dare ſay, other places in their turn, becauſe they want ſome new law courts or room for public meetings, conſider how they can ſwell out their courts and their concert-room into the grandeſt poſſible town-hall, and levy a borough rate to build it, without the ſmalleſt ſcruple about 'conſcientious objections,' or a moment's conſideration that they might have all they want, as

far as the uſefulneſs of the building goes, for leſs than a quarter of the money. Some braſs doors in the great hall lately opened at Liverpool are declared to have coſt no leſs than £6000.

Even if charity is the object of the building, it is all the ſame. In Edinburgh, the city of ambitious failures, where they build ſham ruins of Grecian temples, and where it may be ſaid that nature and money have done as much for the place, and taſte as little, as poſſible, the moſt ambitious of their numerous public buildings is a hoſpital, founded only a few years ago. Many of the hoſpitals in London and other large towns have great architectural pretenſions. The Royal Infirmary at Mancheſter is perhaps the moſt ſtriking building in that city of political economiſts, and even has ornamental gardens in front of it. The words political economy bring into one's head the London Univerſity and their college in Gower-ſtreet, with its dome, and portico, and flight of ſteps—like the Capitol at Waſhington, in the United States: ſo you ſee that neither the diffuſers of penny magazines and univerſal knowledge, nor the poſſeſſors of univerſal ſuffrage and a quadrennial king, are elevated above, or ſunk below, that univerſal paſſion for building magnificently, which I ſaid was inherent in civiliſed men of all ages and in all countries. I muſt have ſaid enough to ſatisfy you, if you doubted it before, that it is; and that it is no more worth while to argue with a man who challenges you to give reaſons why any particular edifice ſhould not be built as plainly as poſſible, inſtead of as handſomely as you can afford, than to attempt to convince a man who does not like muſic that he ought to like it, or to refute the propoſition that Hatfield Level is quite

as pleaſant a country as Wharfedale or the Lakes, or that the prevailing preference for handſome women over ugly ones is irrational and abſurd.

But ſome people will grant all this, and a good deal more, rather than give up their particular prejudice with regard to buildings for religious purpoſes. If a nobleman almoſt ruins himſelf in building and furniſhing a houſe, it is rather fooliſh to be ſure; and ſo are the velvet ſofas and gilded ceilings and marble pillars of club-houſes for officers with half or full pay, and lawyers with none; and a great deal of all this fine building we have been talking of is certainly not undertaken from the proper motive of giving pleaſure to thoſe who are to look at it, but from mere vanity and oſtentation. But then, ſay the advocates of ugly churches, all this does no harm, except to the fooliſh people themſelves who waſte their money in this way; whereas buildings for religious purpoſes ought to have nothing to diſtract the eye and the mind from the ſervice to be performed there. Well, I have no diſpoſition to diſpute that. But that, you know, will not help you to knock off at any rate the external decoration. Your devotions, when you get into church, can be no more diſturbed by having looked at the outſide of a handſome church as you went there, than by looking at a handſome town-hall, or manſion-houſe, or hoſpital, a little further up the ſtreet; and, therefore, unleſs you mean to maintain that the contemplation of handſome buildings of any kind gives riſe to ſinful emotions, the church tower muſt be at leaſt as innocent, and it certainly is to moſt people a far more pleasing ſpectacle than the ſculptured pediment of the Exchange and the Grecian pillars that ſupport it.

But how do you propoſe to make out that devotion is more difficult in a handſome church than an ugly one? Have you got anybody to vouch for the fact that congregations are obſerved to be more attentive to their prayers and to the ſermon in chapels with ſquare windows, and painted deal pews, and plaſtered pillars, than in churches with ſtone pillars, and Gothic windows, and painted glaſs, and oak ſeats without doors. It is of no uſe arguing about ſuch a queſtion. It is either a fact or not. If it is a fact, there has been time enough for it to have been obſerved and publiſhed as a notorious and undeniable thing; and aſſuredly it would have been by the writers of ſermons entitled 'The Reſtoration of Churches, the Reſtoration of 'Popery,' if there had been any chance of its being recogniſed as true. Mind, I am not ſaying a word in favour of the upholſtery, and flower-pots, and day-light candles, and altar croſſes, and lock-up chancels of the 'poſture and 'impoſture' churches;* but I am not one of thoſe who

* Some of my friends who belong to this ſchool, on reading this ſentence in the former edition, complained that I had gone out of my way to have a fling at them. I ſee no reaſon why they ſhould complain. They cannot be afraid that my taking a fling at their flower-pots and candleſticks will knock them over; and they ought to be the more glad to accept my opinion, as far as it goes, in favour of Church decoration, as that of a perſon who they know has no ſympathy with their peculiar religious views. For the ſame reaſon, I cite the opinion of the late Biſhop Stanley, and the growing diſpoſition of the Proteſtant diſſenters to build handſome meeting-houſes in the Gothic ſtyle, inſtead of the oſtentatiouſly ugly ones in the Theatre Royal ſtyle, which they uſed to build; becauſe theſe things have the value of independent teſtimony; while *for this purpoſe* the opinion of the Biſhop of Exeter and the practice of the Eccleſiological Society, would have no weight at all. Where two parties of oppoſite views

never feel ſafe from one kind of folly until they have taken refuge in the oppoſite one. If occaſional extravagance and bad taſte in church decoration is to condemn all decoration of churches, it is evident that all the ornamentation of everything in the world muſt be given up, ſince there is none which is not ſometimes applied with as great extravagance, and as bad taſte, and as little regard to decorum as any that is to be found in the churches of any religion whatever. In ſhort, ſo long as men continue to be created with a preference for beauty over uglineſs, whether in the works of the Creator or of themſelves, it will not be eaſy to convince any reaſonable being that the only buildings which ought to be conſecrated to uglineſs are thoſe which are conſecrated to the worſhip of God.

And here I do not know why I ſhould not quote a few words of that wiſe and pious man to whom the epithet 'judicious' has been long by common conſent affixed, although they have been often quoted before:—'Albeit 'God reſpecteth not ſo much in what place, as with what 'affection he is ſerved .... manifeſt notwithſtanding it 'is, that the very majeſty and holineſs of the place where 'God is worſhipped hath, *in regard of us*, great virtue, 'force, and efficacy; for that it ſerveth as a ſenſible help 'to ſtir up devotion; and in that reſpect, no doubt, better-'eth even our holieſt and beſt actions in this kind. As 'therefore, we everywhere exhort all men to worſhip God, 'even ſo for the performance of this ſervice by the people

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gradually come to adopt the ſame concluſions on certain points, there is a very ſtrong preſumption that they are the concluſions of common ſenſe.

'of God aſſembled, we think no place ſo good as the 'church, neither any exhortation ſo fit as that of David— 'O worſhip the Lord in the beauty of holineſs.' And again he ſays (a little before):—'Touching God himſelf, 'hath he anywhere revealed that it is his delight to dwell 'beggarly, and that he taketh no pleaſure to be worſhipped 'ſaving only in poor cottages? Even then was the Lord 'as acceptably honoured of his people as ever, when the 'ſtateſieſt places and things in the whole world were ſought 'out to adorn his temple.'—*Hooker's Eccles. Pol.* book v. chap. 15.

Indeed this ridiculous and ignorant prejudice againſt the uſe of ornament in buildings for religious purpoſes alone is a relic of Puritaniſm now faſt diſappearing even among diſſenters, with whom it naturally lingered longeſt; as anybody may ſee by looking at what they uſed to call by the undecorated name of 'meeting-houſes,' but now deſignate as chapels, and make as handſome as they can afford, and as their architect knows how to do for the money. Inſtances of this kind may be ſeen in every large town, but I will only mention two: the Unitarians have built a Gothic meeting-houſe at Leeds, which, if it had a tower, certainly need fear compariſon with no church there. I cannot ſay as much for the more pretentious Preſbyterian chapel juſt built in the ſame town, though it is equally good as an illuſtration. The other inſtance is ſtill more remarkable, of three chapels of different denominations ſtanding ſide by ſide in Bloomſbury Street, near the Britiſh Muſeum. The plaineſt—indeed the word 'plain' can only be applied to it by the ſame courteſy which applies it inſtead of another epithet to female beauty of a certain

order—is a Church of England Chapel; the ſecond belongs to the French Proteſtant Epiſcopalians; and between them ſtands a Baptiſt meeting-houſe, with two ſpires and a large wheel window between, not to be ſure in the very beſt ſtyle, but of far greater architectural pretenſions than either of the other two.

But there are perſons who ſeem to have no objection to building ornamental churches, provided only the ornamentation is anything elſe but Gothic. The columns, entablatures, and pediments, originally imported from thoſe very temples of Jupiter, Venus and Bacchus, where not a few of the Popiſh ſuperſtitions and practices had their origin, have become aſſociated with the idea of Proteſtantiſm, in the minds of theſe people, by ſome extraordinary proceſs of aſſimilation which has never been diſcloſed to the vulgar; while Gothic arches and high-pitched roofs and traceried or lancet windows, are pronounced eſſentially Popiſh and antichriſtian.

It is difficult to conceive an objection founded on more profound ignorance of every part of the ſubject. Theſe perſons muſt firſt be ignorant that what they mean and underſtand by the term Gothic Architecture, never flouriſhed at all in the city which is the head quarters of Popery, nor indeed ſouth of the Alps anywhere. They muſt alſo be ignorant—aſtoniſhing as ſuch ignorance is—that the metropolitan Church of the Roman Catholic world, is not even in the Italian Gothic ſtyle, which is very different from our Northern Gothic, but in the ſame ſtyle as our ſingle Proteſtant-built Cathedral of St. Paul. They cannot be aware either of that which they might learn from any of the commoneſt books on the ſubject, that, although different

authorities fix the climax of Gothic Architecture at different epochs, none of them have the leaſt heſitation in recogniſing the ſymptoms of its decay long before the times when Luther defied the Pope, and Henry VIII. plundered and deſtroyed the monaſteries. Neither was its fall confined to the countries where Luther preached and Henry plundered, but was juſt as rapid and deciſive where the ſtill dominant Papiſts were burning Proteſtant Chriſtians, as where fanatical Proteſtants were burning Popiſh Churches.

Moreover, as Gothic Architecture did not fall with Popery, neither was it revived by Papiſts when it did begin to revive. As long as Proteſtants built churches in the Grecian or Italian ſtyle, ſo did the Papiſts. If Gothic building is more connected with Popery than with any other form of Chriſtianity, how does it happen that the Papiſts were neither the firſt to revive it, nor have been more ſucceſsful than Proteſtants in cultivating it ſince they readopted it? For now that they have adopted it, I do not think anybody will deny that their attempts at it have been hitherto quite as bad and feeble and un-Gothic as ours. Where is the modern Popiſh Church even of their moſt magnificent attempts, which you are ever told to go and look at as a ſpecimen of what can be done in Gothic Architecture now? The beſt that I know of modern churches, is neither a Roman Catholic nor a Church of England Church, but the Irvingite Church in Gordon Square, though it yet wants the tower and ſpire, and the roof is too low in pitch and only ſlated. Or if you prefer the opinion of a higher authority than mine, and agree with Mr. Ruſkin that the only modern church which deſerves commendation, is that in Margaret Street, near Cavendiſh

Square, ſtill that is not a Popiſh one either. With regard to that Church however, I cannot help thinking, that his tranſparent prejudices for the ſurface decoration of the Italian Gothic, which has been attempted there, have blinded him to ſome very glaring faults in that fantaſtic building, and even to offences againſt maxims of his own; ſuch as that in the Seven Lamps; 'as the pinnacles are not 'enough without the ſpire, ſo the ſpire is not enough with-'out the pinnacles' at the junction of the tower with the ſpire: for in that Church there are none.

I have been aſked why I apply that particular epithet 'fantaſtic' to this Church. Becauſe it is the proper one to deſcribe ſtriking novelties which are not ſucceſsful; and according to my opinion and that of everybody whom I have heard ſpeak of it, except a few worſhippers of Mr. Ruſkin and friends of the architect, that is not ſucceſsful. I do not call it fantaſtic becauſe I have any prejudice whatever againſt Gothic brickwork, or againſt decorating it by means of ſtones, or bricks of a different colour. On the contrary, I wiſh that ſtyle was more cultivated; but ſimply becauſe I think that in the outſide of this Church and its appurtenant buildings the architect has failed egregiouſly. As for the parts which only profeſs to be Geometrical Gothic, they have juſt the common faults of nearly every modern church, and I do not mean to apply the epithet fantaſtic to them certainly. But as the inſide of the Church is not done yet, I will take the liberty of adding, that I hope the architect will not be allowed to indulge that peculiar taſte for woodwork in the paſteboard ſtyle which he has diſplayed in Merton College Chapel, and St. Auguſtine's at Canterbury. The Gothic builders no doubt uſed their timber, in one ſenſe,

waſtefully, by not diſpoſing it in the way to get the moſt ſtrength out of a given quantity of materials. But nothing can be more abſurd with a view to effect, or more miſchievous where ſtrength is required, than to copy their carpentry, ſo far as the arrangement goes, while you deviate from it by uſing materials of not half the thickneſs which they uſed. If you cannot afford oak of the proper thickneſs to execute ornamental work in the old ſtyle, it is far better to do it in ſome cheaper wood, than to make ſeat ends and other work of oak boards not half the thickneſs of the old ones. You cannot ſuppoſe that the old builders did not know as well as you do, that the 'redundance' which they frequently displayed in materials, as well as in work, *was* redundance, and was not neceſſary for the mere ſtrength of the fabric, though it was eſſential to the ornamental effect. But I muſt not purſue that topic any further now.

Sometimes the ultra-Proteſtant objection to Gothic Architecture is attempted to be ſupported on the merely perſonal ground, that ſome of its moſt ardent cultivators have diſtinguiſhed themſelves by cultivating alſo as much of Popiſh obſervances as they dare, and ſome have at laſt gone to their own place, where they can enjoy them all. Twenty years ago this objection would have ſounded more formidable than it does now; becauſe now it has the common misfortune of bad arguments, proving a great deal too much. If it is good for anything, we muſt expect ſoon to ſee thoſe Unitarian and Preſbyterian meeting-houſes in Leeds and the Baptiſt one in Bloomſbury, of which I ſpoke, and I don't know how many other Gothic edifices beſides, belonging to various denominations of Proteſtant diſſenters all over the kingdom, handed over, with their congregations, to

the dominion of the Pope. Twenty years ago it would perhaps have been difficult to name any person of note who had distinguished himself as an opponent of Tractarian opinions, and who had also taken any active part as a restorer of churches. Now there is no difficulty at all about it; and everybody must know such instances within his own acquaintance. I will mention no living instance among church restorers, but I will mention a very remarkable one of a person no longer living. I suppose no bishop, living or dead, has been more notoriously opposed to those views than the late Bishop Stanley, of Norwich; and yet I see in his life, written by his son, it is specially noticed that 'he was not deterred by his great dislike of High-Church 'views from advocating earnestly the more frequent employ-'ment of art for church decoration, and (observe this too) 'increased accommodation for the poor by the substitution 'of open sittings for closed pews.' Although the word 'Gothic' is not mentioned here, it is obvious that the passage has reference to that style of art, and that most beneficial system of open seats, which the High-Church party undoubtedly deserve the credit of having been the first to introduce. I may add that Mr. Ruskin, whose advocacy of 'the more frequent employment of Gothic art in church 'decoration' probably goes beyond that of any other writer of our time, has made it evident by a pamphlet of a semi-theological and ultra-dogmatical character, with the fantastic title of 'Notes on the Construction of Sheepfolds,' that he is much more inclined to the Low-Church party than to the opposite one.

I have already so often mentioned Mr. Ruskin's name, as no one who writes on architecture now can well avoid

doing, that I think it better to tell you at once my opinion of his writings. Hitherto the reading world has been too much divided, on the one hand into enthuſiaſtic admirers of his wonderful genius, his correct taſte, and his infallible inſtinct on all matters of art, no leſs than the ſingular eloquence with which he delivers his opinions, or decrees; and on the other, the deriders and denouncers of his artiſtic hereſies, perverted taſte, and violent prejudices, his inflated ſtyle, and above all his unexampled arrogance and conceit; and an article on Architecture in the Quarterly Review of 1854, written in their very worſt ſtyle, and quite as dogmatical as Mr. Ruſkin himſelf, declares that his late vagaries have rendered him worth no further notice. And by way of ſpecimen of theſe vagaries, this ſagacious authority aſks how anything can be worth liſtening to from a man who is ſo inconſiſtent as to advocate the Gothic practice of carving foliage on the capital of a pillar, while he denounces the Renaiſſance ornament of a marble wreath carved on a flat wall 'like a bundle of dead flowers hung 'upon a peg.' It is not ſurpriſing that a critic who ſelects for admiration the two churches of St. George of Bloomsbury and St. George of Hanover Square, ſhould be unable to ſee the difference between the lively naturaliſm of the Gothic, and the flat and dead artificialiſm of the claſſical ornament in theſe two caſes. If Mr. Ruſkin had no worſe inconſiſtency than this to anſwer for, his defence would be very eaſy, and the many valuable judgments which his works contain, would have a better chance of being received. But I confeſs I ſhould be ſorry to have to undertake his defence againſt that charge of inconſiſtency, and ſtill more ſo to excuſe the dogmatical arrogance of his ſtyle, which is

hardly to be matched anywhere, except in a 'religious 'newſpaper,' or to deny that his reaſons are often ſo inconcluſive and irrelevant as to be almoſt childiſh, and even his ſound opinions frequently puſhed into extravagance and mixed with abſurd prejudices. He ſeems to have a kind of ſpite againſt the Engliſh Cathedrals, becauſe he once caught cold while he was ſketching in Saliſbury (if I remember right), and hardly ever mentions them except with a kind of foreign diſdain, or condeſcending approval, even when he finds nothing to condemn.

Another great fault of his is the habit of affecting to decide queſtions of taſte by giving nicknames to things he does not like; ſuch as calling King's College Chapel like a four-legged table upſide down, which it is not, and never could have appeared to him or anybody elſe. It has faults certainly, and great ones; but this careleſs and contemptuous way of diſpoſing of a building, which has always been admired as at any rate the fineſt of its kind, convinces nobody, except thoſe who are incapable of forming an opinion for themſelves, and diſguſts everybody who (whether rightly or wrongly) has a ſtrong opinion the other way. In the ſame way, and worſe, as I ſhall ſpecially notice hereafter, he condemns a large claſs of Engliſh towers, which would include that of Doncaſter, by calling them 'confectioner's 'Gothic.' And it is the more neceſſary to notice this fault in his writings, becauſe there are circumſtances in which that mode of deriding monſtroſities is perfectly fair and right. Thus it is perfectly right to call ſuch ornaments as the architect of the Leeds Town Hall exhibits upon its lower corners, ſoup-tureens; and thoſe on the corners of his propoſed tower, teetotums; becauſe they reſemble nothing elſe

on the face of the earth; and as thoſe uſeful and amuſing articles are not the kind of things that ſtrike one as fit to be exalted into gigantic architectural decorations, it is ſufficient condemnation of ſuch ornaments to give them their proper nicknames. But to call a window a lancet window, or a certain kind of moulding a cable moulding, would not be to call it by a nickname, but by its true name, of which it has no need to be aſhamed. Although a building does not require ſoup-tureens, or tea-urns, or teetotums, either for uſe or ornament, it does require windows; and the windows muſt have ſome form; and a long light, ending in a pointed arch, is a very beautiful form, and it cannot be the leſs beautiful becauſe it accidentally reſembles a lancet or anything elſe. But it would be a very different thing if you were to ſtick up great ſolid ſtone lancets on the top of a building and call them ornaments, and aſk the world to admire them. Again, the cable-moulding is *intended* to imitate a cable: a petrified cable laid in the hollow of an arch, though not ſuch a high order of ornament as the imitation of natural objects, would not be an ugly thing; and indeed without the aid of petrifaction, I dare ſay you have often ſeen pieces of old cable put round the raiſed beds in a flower-garden as a kind of ruſtic ornament, and with not a bad effect.

In reading Mr. Ruſkin's books therefore, you muſt not be frightened merely becauſe you ſee ſomething that is generally admired called by ſome ridiculous nickname; but conſider whether it deſerves it. If it does not, the ridicule only falls on the perſon who avails himſelf of ſuch a very ſmall and cheap ſtyle of criticiſm. Another fault in them you will very ſoon diſcover without being told of it, viz. that they are much too long and ſpun out with perpetual

diſſertations, which may be relevant to ſomething which Mr. Ruſkin is thinking about when he writes them, but certainly are not to the ſubject before the reader. Notwithſtanding theſe rather ſerious blemiſhes however, he has done more than any other writer—indeed no other that I know of has done anything worth notice—to call the attention of mankind to what may be called the moral characteriſtics of Gothic Architecture as diſtinguiſhed from Claſſical or Renaiſſance. I ſhould think few perſons, and quite as few architects as others, can read his books without learning a great deal from them which it is worth while to know, and without finding reaſons which they never thought of, for either giving up or holding more diſtinctly, many opinions which have been floating in their minds in a ſomewhat hazy way before; for it is by no means to be inferred that his reaſons are always bad or abſurd becauſe they are ſometimes. I need hardly add that the opinions of ſuch a perſon, however valuable in general, muſt be received with caution, and not ſwallowed whole, eſpecially on queſtions on which it is evident that he has ſomewhat violent prejudices, ſuch as his preference for the Southern over the Northern Gothic, to which he never does juſtice when they come in competition.

But to proceed with what we were talking of when I began this epiſode about Mr. Ruſkin. I have lately heard the objection to Gothic churches put in another form, by thoſe who could not help ſeeing that the old objections would do no longer. They ſay that the breaking up of the area by pillars and aiſles and tranſepts, which is thought eſſential in a large Gothic church, is unſuitable to Proteſtant worſhip. This too is a moſt unlucky objection, for more

reaſons than one. In the firſt place, if the hiding of the miniſter from the view of ſome of the congregation by intervening pillars is more unſuited to one kind of worſhip than another, I ſhould think that the ſervice to which it is leaſt ſuited is that where the people go to *ſee* what is done by the prieſt, performing ceremonies, and celebrating maſſes in Latin, and not that ſervice where they go partly to *hear* a ſermon, and partly to join in prayers read from a book which they have in their hands, and moſtly know by heart, and the whole of which is performed in 'a tongue underſtanded 'by the people.' That is one anſwer to the objection, and as it is not mine, I will add that I think it is a very good one. Another is, that neither are aiſles and pillars and tranſepts eſſential to Gothic Architecture, nor is the abſence of them in the leaſt implied by the term Italian or Grecian Architecture. There is not a Gothic church in the world with the aiſles and tranſepts ſo completely cut off from the part where the ſervice is performed by the pillars as our aforeſaid Proteſtant Cathedral of St. Paul; and I do not remember any large church in that ſtyle (except a few very modern ones—and the ſame exception might be made in Gothic) where there are not aiſles and pillars dividing them from the nave, juſt as in a Gothic church. But there is yet a third, and perhaps a better anſwer ſtill, viz. that the whole of this objection turns out to be founded on a complete miſtake as to a matter of ſcience; not indeed an unnatural one, but yet one which is now fully aſcertained to be a miſtake. For it is at laſt diſcovered that, ſo far from the pillars and aiſles and broken roofs of Gothic churches, built after the faſhion of the old ones, being worſe for hearing in, they are generally better, than the wide ſpread

buildings, all under one ſpan like a railway ſtation, which it was the faſhion to erect in large towns a few years ago. This fact is noticed in two recent Reports of the Church-building Society, and I had obſerved the ſame thing myſelf in ſeveral inſtances, even in ſmall churches, though without knowing that it was general, before I read it there. Certainly ſome of the worſt places for hearing in that I know are buildings all under one roof, and of far leſs capacity than many churches, both old and new, of the nave and aiſle conſtruction in which a large congregation can hear perfectly well. So that in this, as in many other things, the old Gothic builders knew what they were about a great deal better than we do, who a few years ago deſpiſed and are now juſt beginning to learn their principles.

I ſay 'to learn their principles:' becauſe I deny the truth of that which is generally the laſt reſort of the objectors to the revival of Gothic Architecture, that the moſt we aim at is a ſucceſsful copy or imitation of the work of five centuries ago, and that we can never become really Gothic builders, deſigning our buildings on purely Gothic principles, becauſe we do not know what they were. It is indeed too apparent that this is the moſt that the great majority of gentlemen who undertake orders for Gothic buildings do aim at. But it is not uſual to judge of the capacity or the dignity of any other art or myſtery by the doings of the nine ſtupid men who follow it juſt as they would have followed knife-grinding if they had been bred to it, but of the tenth—or it may be the hundredth man of ſound mind and real genius, and of the true Gothic ſpirit, who does nothing merely becauſe ſomebody elſe has done it before, but is always thinking how he can do better than before—who can ſee faults in his own works while other people are

admiring them, and reflects that in a few years he will be eſtimated not by the quantity of work he managed to get paid for in his time, but by the advances which he helped his art to make.

Thus it is that Thomas Rickman the Quaker, muſt be regarded as one of the refounders of Gothic Architecture, although he never himſelf built anything worthy of that deſignation; becauſe he made the firſt ſucceſsful attempt to reduce the elementary facts of that kind of architecture to ſomething like a ſyſtem. Rickman indeed was far from being the Newton who was to diſcover the laws of Gothic building; but long before laws or principles can be discovered, facts have to be aſcertained and arranged. Copernicus and Galileo had to convince the world that the planets move round the ſun, and Kepler to aſcertain that their motion is performed in elliptical orbits and in periods whereof the ſquares vary as the cubes of their diſtances, and that they ſweep over equal areas in equal times, before Newton found out the law which produces all theſe effects and many others not then thought of. And ſo every man who finds out any rule which was clearly followed by the builders of the thirteenth and fourteenth centuries, or ſucceeds in exploding any of the conventional follies of the modern builders, is really doing more towards the recovery of Gothic principles than nine-tenths of the 'eminent archi-'tects' who compound churches and manſions out of Gloſſaries and Antiquities, making them their own by juſt ſpoiling the proportions, and copying the details with that degree of accuracy, that while everybody can ſee that it is nothing better than a copy, they can alſo ſee that it is ſomething worſe, becauſe it is incorrect and incongruous.

Suppoſe that ſome of the dealers in the 'occult ſciences' could put us in the way of getting architectural advice from the departed builders of St. Mary's Abbey or the Choir of Lincoln, I fancy we ſhould hear very little more about the expediency of abandoning the attempt to reſtore Gothic Architecture, and trying to invent ſome new ſtyle more ſuitable to the wants of the age. The gentlemen of the magic mirror would carry all before them, and the Royal Inſtitute of Architects would ſubſide into an eleemoſynary inſtitution, after ſtruggling through a few years for a precarious livelihood by deſigning Italian hotels and Grecian Town-halls, and perſuading Government Boards (which would of courſe be the laſt hold of nonſenſe) that Gothic Architecture in public buildings is inadequate to the exigences of the Britiſh Conſtitution, and unworthy of the nineteenth century. I cannot, it is true, give you actual proof of the effect produced by thus bringing up a builder of the thirteenth century; but I do happen to know a remarkable inſtance of the effect produced on a diſbeliever in Gothic Architecture, by bringing him into contact with the works of the thirteenth century. While the new library at Cambridge was building (which has fully realized its early promiſe of being the ugliеſt thing in either univerſity—except that in the Taylor Building at Oxford the ſame architect has perhaps ſurpaſſed himſelf) I ſaid to the preſent Dean of Ely, whoſe pupil I had the pleaſure of being at Trinity College, that it was a miſtake to build it in the Italian ſtyle. He had then lived for nearly thirty years among the very ſcanty remains of good architecture and the vaſt quantity of ſham Gothic which the Univerſity poſſeſſes, and he replied at once, 'Gothic Architecture is obſolete!' But as ſoon as he

was tranſplanted into the ſhade of the magnificent Cathedral of the ſame county, he ſaw what Gothic Architecture really was and might become again, and ſoon became known as the moſt zealous and moſt ſucceſsful reſtorer of his church ſince the times when the Cathedrals and their architecture fell into contempt.

But why all this outcry of the Græco-Italian or Renaiſſance men againſt nineteenth century Gothic, on the ground that if it ſucceeds it is only imitation, and that the greateſt praiſe we can hope for is that in a hundred years, when the ſtone has got to look old, Doncaſter Church may poſſibly be taken for a church of the times of Edward I. inſtead of Victoria I.? Have they forgotten that it is not ſo very long ſince their own ſtyle was advocated on the very ſame ground, that it was a revival of the '*truly ancient* Greek 'and Roman Architecture, which the Goths and Vandals 'and other barbarous nations had demoliſhed, together 'with that glorious empire where thoſe ſtately and pompous 'monuments ſtood; introducing in their ſtead a certain 'fantaſtical and licentious manner of building which we 'have ſince [therefore] called *modern, or Gothic*. Conges-'tions of dark, heavy, melancholy, and monkiſh piles, with-'out any juſt proportion, uſe or beauty, compared with the 'truly ancient; ſo as when we meet with the greateſt in-'duſtry and expenſive carving, full of fret and lamentable 'imagery, ſparing neither of pains nor coſt, a judicious 'ſpectator is rather diſtracted or quite confounded, than 'touched with that admiration which reſults from the true 'and juſt ſympathy, regular proportions, union and diſpoſi-'tion, and from the great and noble manner in which the 'auguſt and glorious fabrics of the ancients were executed.'

Thus wrote the celebrated John Evelyn, one of the leaders of public taſte, and moſt accompliſhed men of his time, about a century and a half ago; and ſome ſimilar nonſenſe is quoted in the ſame article in the ſixty-ninth volume of the Quarterly Review (a very different article from the miſerable production of July 1854) from a life of Sir Chriſtopher Wren by his ſon, who talks of 'the noble 'air and grandeur' of his father's ſtyle, compared with the 'mountains of ſtone not worthy of the name of architecture, 'with which Europe had been filled' by thoſe 'modern' innovators who invented Gothic Architecture. Little did that little Wren imagine, that the world would ſoon be only too ready to make the compariſon he invited, and would never make it without being ſtruck with the lamentable failure of the greateſt architect ſince the Gothic times, when he undertook to complete and mend the work of the mere travelling maſons of the thirteenth century whoſe names were not thought worth recording. And little did theſe worthies of the ſeventeenth century dream, that their eulogies of the auguſt and glorious fabrics of the truly ancient ſtyle would one day be turned round upon them, and their favourite ſtyle be denounced by the moſt popular architectural writer of the nineteenth century, as a modern impoſture, and called 'the foul torrent of the Renaiſſance,' which had ſwept away the remains of the only true and natural architecture that ever really flouriſhed north of the Alps, an architecture containing 'not five but fifty Orders,' and 'exhibiting more variety and invention in a ſingle 'Gothic chapel than in all the Greek and Roman temples 'together.'

And with regard to the propoſed invention of a new

ſtyle, not only is ſuch a propoſal rather like advertiſing for tenders for a volume of plays to ſuperſede Shakeſpeare, but we may as well remember at once that no new ſtyle of architecture ever was *invented*. Every ſtyle grew inſenſibly out of ſome that went before it, under the hands of men who were every day practiſing the older. Even 'the foul 'torrent of the Renaiſſance' did not ſuddenly overwhelm and extinguiſh the expiring embers of the degraded Gothic of the ſixteenth century, but came over them gradually; and as we have ſeen, it came, not profeſſing to be the invention of a truly novel, but the reſtoration of a truly ancient ſtyle. It will be time enough for us to begin inventing new ſtyles, or even modifying old ones, when we have learnt to deſign and execute the old ones decently. And that is not to be done by compounding together plans of one old building and details of another, and teaching or leaving workmen to believe that their higheſt aim is to reduce all their work to exact lines and ſmooth ſurfaces, and that ornamentation is a matter of files and drags and not of deſign and ſpirit; but by imbuing ourſelves and them with the true Gothic ſpirit and principles, and the moral no leſs than the mechanical principles of the Gothic ſtyle.

If you doubt that modes of building have, as indeed modes of doing everything have, moral characteriſtics, remember that epithet 'pompous,' which Evelyn applied to the monuments of ancient Rome; for although he uſed the word not in the uncomplimentary ſenſe in which we do now, yet he accidentally hit the very point which Mr. Ruſkin has ſince fixed on and condemned as the moral characteriſtic of the Claſſical or Renaiſſance ſtyle, tracing its defects mainly to different kinds of pride, both in the builders and

in thoſe who encouraged or employed them. But as we are more particularly concerned with Gothic Architecture at preſent, you need only read the little tract 'On the nature of 'Gothic,' a ſingle ſtone which he has allowed to be taken out of his great heap of 'Stones of Venice,' and publiſhed for the benefit of the Working Men's College at the ſmall price of ſixpence. Whether you agree with him or not, that the 'characteriſtic or moral elements of Gothic' are properly expreſſed by the terms, Savageneſs, Changefulneſs, Naturaliſm, Groteſqueneſs, Rigidity, and Redundance,* you can hardly fail to be convinced that it has moral elements of its own. And I am convinced alſo that it is hopeleſs to expect any real Gothic building except from men who themſelves poſſeſs correſponding moral characteriſtics; and that one eſpecially, which overrides or is in a manner involved in all the others, and on which Mr. Ruſkin has duly inſiſted throughout his writings — Truthfulneſs or Reality.

But you may ſay, all this is only fighting with dead giants: that as regards church building at leaſt, the Claſſical or Renaiſſance ſtyle is dead and extinct; and that the paſſion for Gothic wants no encouraging juſt now. That is the very reaſon why I think that the time is come when we muſt pay more attention to its principles than we have hitherto done, if we intend to carry it much farther, or

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* Moſt of theſe terms explain themſelves, but the two laſt do not. Rigidity the author explains to mean 'active rigidity,' like that of bones, which are contrived ſo as to obtain the greateſt power of reſiſtance with the leaſt material; not the paſſive rigidity of one great ſtone lying on the top of others, as in Egyptian and Grecian Architecture. And by Redundance he means 'uncalculating beſtowal of the wealth 'of labour.'

even to preſerve it from reaction and retrogreſſion. Great and rapid as the improvement has been within the few years that have elapſed ſince Gothic Architecture began to be ſeriouſly ſtudied, it muſt be admitted that there has not been a ſingle modern church yet erected, much leſs any other kind of building calling itſelf Gothic, which any perſon of experience could for a moment ſuppoſe to have been built in mediæval times. Long before you have ſatisfied yourſelf where the miſtakes are, you ſee at a glance in nine caſes out of ten, that the building is full of them, and that it is in ſhort itſelf one great miſtake; and even the tenth is only ſo much better that it takes longer to diſcover where the faults are, though you ſee in a moment that ſomehow or other it is very far from being 'the real thing.' Now this will do and may be tolerated up to a certain point, on the ground that you cannot expect perfection at once; but the moment it can be ſaid with truth that Gothic Architecture is improving no longer in the hands of the nineteenth century architects, that on the whole the buildings of this year are no better than thoſe of laſt, and are ſtill only tawdry copies of the fourteenth century—then there is an end of the revival of Gothic Art. There are people enough, and architects enough among them, on the watch for that end; I am convinced that many, even of the architects who are ready to execute orders for 'ſomething Gothic' (as Mr. Scott ſays), do not really like it and have no ſympathy with it. And it would be ſurpriſing if it were not ſo, conſidering how few, either of architects or men now upon the earth, poſſeſs the moral elements of Gothic in their own characters, whether you adopt Mr. Ruſkin's ſeven characteriſtics, or ſubſtitute for them any other deſignations which you may think more appropriate. I am afraid it would be

nearer the truth to ſay that all his characteriſtics of the Gothic mind which I juſt now mentioned have almoſt periſhed out of the earth and been ſupplanted by their oppoſites.

We know how Gothic Art began to fall when the corruptions of Popery had reached their height. We have ſeen how it was ſpoken of two centuries later, and how nothing but the 'grand ſtyle' of the Renaiſſance could be tolerated in thoſe times, the moſt corrupt, unbelieving, and profligate ſince Chriſtianity was firſt preached in England. Even then, that ſame John Evelyn, though writing according to the faſhion of the time, of the buildings of the middle ages, yet being himſelf a man of far better and purer mind than moſt of his contemporaries, perceived and acknowledged that thoſe 'dark, heavy, melancholy and monk-'iſh piles' had ſtill 'a kind of proportion and beauty' of their own. And Sir Chriſtopher Wren, alſo a man of ſingular honeſty and clearneſs of mind, is ſaid to have confeſſed that there were mechanical myſteries in their conſtruction which he was not able to penetrate; and he was not only the firſt architect, but one of the firſt mechanics of his time. Some years later we find Sir William Chambers, the architect of Somerſet Houſe, who never himſelf ventured out of the 'truly ancient' or Claſſical ſtyle, candidly declaring that there was more mechanical ſcience displayed in the building of Saliſbury Cathedral, with its ſtone vaults lifted up on ſlender pillars, and its huge ſpire raiſed above foundations and pillars which had not been even deſigned to carry it, than in all the works of the ancients. Indeed I don't know any more ſtriking illuſtration of the mechanical ſuperiority of the Gothic over the Claſſical ſtyle than a compariſon of the ground plan of St. Paul's with

that of any of the old cathedrals of Pointed architecture, ſhowing how much more ſpace is occupied by the heavy ſquare piers of the modern than by the light diamond-ſhaped pillars of the Early Engliſh and ſubſequent Gothic ſtyles.

Still however the world went on for nearly a century more regarding the old Gothic buildings as at the beſt worth preſerving only as antiquarian curioſities; and not even for that, whenever they ſtood in the way of any 'pompous 'monument' in the Pagan ſtyle, for which Gothic windows and arches were blocked up and ornaments cut down without the leaſt reſerve, until a very few years ago. Within my recollection the canting monument-keepers who uſed to drive viſitors through the aiſles of cathedrals, locking the gates behind them, for fear a ſhilling's worth ſhould eſcape clandeſtinely, never dreamed that anybody could want to look at the inſide of a church except for the ſake of the 'Tombs.' Long after books on Gothic Architecture began to be publiſhed, ſuch as Britton's Cathedrals and Antiquities, Sir Chriſtopher Wren, who built Temple Bar and the Towers of Weſtminſter Abbey, and Inigo Jones, who mended up the *old* St. Paul's with a new Corinthian front, were regarded as the greateſt architects this country had ever ſeen. If a boy had any curioſity about architecture he was introduced to Greek temples, arches of Titus, St. Peter's and St. Paul's Cathedral, and harangued about the Five Orders as if they were the Ten Commandments of architecture. I remember ſome vain attempt of that kind being made upon me, and their ending in a vague and irreverent ſuſpicion that the ſaid Orders were nothing better than a humbug, inaſmuch as I could ſee nothing of the kind in York, or Beverley, or Weſtminſter, and the builders of thoſe Churches ſeemed to me to have done much better

without ſuch Orders than any of the modern builders with them.

Within five and twenty years from the time I refer to, we find the Five Orders and everything belonging to them already driven out of eccleſiaſtical uſe altogether; and vergers of Cathedrals, and even ſextons of ſmall pariſh churches, calling your attention to the diſtinction between the Early Engliſh and the Early or Late Decorated in the different parts of their churches, and explaining how that bad Perpendicular window is only a late inſertion, inſtead of reciting their old ſing-ſong about a ſet of good for nothing people buried under the moſt frightful and pompous monuments, in the moſt correct Claſſical ſtyle, which you only wiſh you could avoid ſeeing as well as hearing about, and would like to treat as Moſes did the golden calf which the children of Iſrael made while he was abſent. Theſe are undeniable marks of improvement in public taſte. And now, in the year 1853, we have boldly avowed our intention to rebuild one of the fineſt pariſh churches in England—not merely in the Gothic ſtyle, for about that nobody in theſe times would have doubted for a moment, but in a manner inferior, we hope, to the old one in no reſpect, and ſuperior to it in thoſe reſpects, in which the old one (as Rickman remarked) did not come up to the expectations ſo highly excited by the richneſs of its principal feature, the Tower. In the ſucceeding lectures you will ſee what were the reaſons for adopting the particular ſtyle of reſtoration which we have adopted; and therein I hope to ſhow you alſo ſome diſtinct marks of progreſs towards the recovery of true Gothic principles, which are exhibited here for the firſt time, and are ſufficiently proved to be ſound by their reſults.

LECTURE II.

ON THE EARLY GOTHIC STYLES.

IF Doncaſter Church had been burnt down at any time within the two laſt centuries, up to thirty or forty years ago, it would infallibly have been rebuilt in what is variouſly called the Grecian, or Claſſical, or Renaiſſance ſtyle, like moſt of the London churches, with ſome real columns and a portico at the end, and a number of ſham columns at the ſides, ſupporting nothing, but merely ſtuck againſt the walls becauſe this ſtyle of building is a kind of imitation of the architecture of Greek temples, which conſiſted mainly of real columns without any wall, ſupporting a real entablature on the ſides of the building, and that low gable at the ends which is called the pediment, and in which ſtatues and other ſculpture were placed. When this kind of architecture was transplanted into countries rather too cold for ſitting within columns, the ſpaces between them had to be filled up with walls and windows, and ſo the columns became of no uſe, except for a portico at the end; but ſtill they were retained, and the real wall ſubordinated to them as much as poſſible in appearance, ſo as to keep up a kind of falſe pretence of a building in the Grecian ſtyle, though its main element was

gone. And then, many centuries afterwards, in the Renaiſſance times, after Gothic Architecture had fallen, but people could not prevail on themſelves to abandon the towers which had been the glory of all the Gothic ſtyles, they tried to combine the vertical principle of tower-building with the eſſentially horizontal character of the Greek and Roman Architecture. And this they could find no better way of managing than by piling up a number of little temples on the top of each other, and ſometimes crowning the pile with an obeliſk, the only aſpiring fabric which the ancients poſſeſſed, but never put on the top of any other building. There are ſeveral of theſe obeliſk ſpires in London; and there is another kind of ſpire at that Church of St. George's, Bloomſbury, which I told you is ſpecially admired by the Quarterly Review: it conſiſts of a king —and George II. of all kings to crown a church with, ſtanding on the top of a pyramidal flight of ſteps, which ſtand on the top of a ſmall Grecian temple, which rides aſtride of the pediment; as the obeliſk ſpire of St. Martin's in the Fields alſo rides upon its pediment ſtill more conſpicuouſly.

If the architect of the new Town Hall at Leeds and Sir Charles Barry are allowed to have their way, you will have an opportunity of ſeeing a gigantic ſpecimen of a Renaiſſance tower, compoſed of a ſeries of ſuperimpoſed temples, ending with a cupola in the ſummer-houſe ſtyle, which theſe two ambitious gentlemen propoſe to erect at the expenſe of the unfortunate ratepayers of that borough; though I muſt do the Town Council the juſtice to mention that thus far they have rejected the advice to levy on their conſtituents ſome £10,000 more to make their building and themſelves ridiculous. I will alſo mention for their benefit

that if they are convinced (and I dare ſay the two architects are not wrong in their perception of the defects in the plan deſigned by one of them and approved and improved by the other) that the building will require ſome further elevation, beſides the ſoup-tureens at the corners, 'to relieve the mono-'tony of the ſkyline,' there is one way and one only in which the elevation can be got conſiſtently with that ſtyle; and that is by a dome, raiſed if they like, as St. Peter's and St. Paul's are, on a ring of columns and a circular wall, familiarly called the *drum*. A dome is a perfectly legitimate form of elevated roof. If it is of ſtone, then it is merely a roof, of which every principal ſection is a round (or any other) arch; and not the leſs ſo becauſe you may leave as large a hole as you like at the top and yet the dome will ſtand; for in that caſe the topmoſt ring of ſtones, and each ring in ſucceſſion as ſoon as it is completed, is equivalent to one large key-ſtone, ſince it cannot bulge out anywhere by reaſon of the equal preſſure everywhere, and therefore cannot be ſqueezed in, and therefore is as rigid as if it were filled up and made ſolid. The ancient Romans indeed, who built the Pantheon, and the Byzantines too, never got ſo far as to raiſe their domes on a drum, either becauſe they did not admire it, or becauſe they did not know how to deal with the great horizontal thruſt, which is always tending to burſt the drum, and requires it to be much wider than the real dome if it is of ſtone.

But there is no reaſon why it ſhould not be of wood, or iron, covered with lead, juſt as a common church-roof may be as legitimately of wood and lead as of ſtone; and in that caſe there is no mechanical difficulty about it. Poſſibly you may not know that the leaded dome which you ſee outſide of St. Paul's, is not the ſame as the painted one you ſee in-

ſide; but they are ſeparated by a brick cone which riſes from the drum, like a glaſsblower's chimney, to carry the ſtone cupola (or whatever it is called), and the ball and croſs at the top. At St. Peter's the dome is of ſolid ſtone—and cracked; at St. Paul's, and alſo at ſome of the foreign churches, the bottom of the dome (or cone) is bound together by a huge iron chain to reſiſt the burſting preſſure on the drum. I was glad to find that the people of Mancheſter lately had the wits to reject the ſame advice as that given at Leeds, to build a tower on the Royal Infirmary there, and have put a dome inſtead, which ſerves equally well for the clock which I deſigned for them, and much better for an ornament.

There is indeed another form of Renaiſſance or Claſſical building, which does not pretend to be compoſed of columns, but openly avows the poſſeſſion of real walls and windows, and makes them features of the architecture. I mean the ſtyle of the body of St. Martin's Church in London and many others, excluſive of the portico, and the Reform Club, and many large houſes all over the kingdom, and what are called the Italian Palaces generally.

Hitherto it muſt be confeſſed that no modern architect has ſucceeded in producing a Gothic *houſe* equal to ſome that have been built in this ſtyle; though I have no doubt that that is their fault, not the fault of Gothic architecture. But this Italian ſtyle is juſt as incapable of a genuine tower as the Grecian, from which it is deſcended, and with which it is often combined, as at the church I mentioned juſt now; and moreover it eſſentially belongs to a building in ſtories, and as high at the ſides as in the middle; and therefore it is much more of a theatrical than an eccleſiaſtical

ſtyle ; and accordingly we may for the preſent purpoſe dismiſs it without further notice.

I cannot however refrain from mentioning a ſpecimen of architectural taſte and diſcretion in that line ſtanding before my eyes where I am now writing ; for the ſame architect who propoſes to decorate the town of Leeds with a tower compoſed of Greek temples ſet on the top of each other, has built for ſome enterpriſing gentlemen of Bradford, on the edge of a wild moor above the limits of cultivation in Wharfedale, a large Italian manſion in the ſtyle of a London club and intended for a hydropathic hotel. And it is about as well adapted to the materials as it is to the ſituation ; for the ſtone is the coarſe mill-ſtone grit of the diſtrict, which in two or three years reſumes the colour and appearance of the natural rock, and is obviouſly unfit for any kind of architectural diſplay except the roughest and boldeſt Gothic. I am glad to ſay that the Leeds proprietors of the older eſtabliſhment of the ſame kind in the ſame neighbourhood had the ſenſe to build their water-palace in the ſtyle ſuited to the ſituation and the materials they had to uſe ; though it is moſt diſgracefully ill built.

To the old Roman ſtyle, not this Renaiſſance Italian ſtyle of the ſixteenth century which pretended to be a revival of it, ſucceeded one which was the foundation of Gothic, and is called Romaneſque, or Lombardic, or Byzantine, in its different varieties. It was the firſt to admit the vertical principle of tower building ; and by the very ſimple method of merely building a ſquare tower as high as you like, and decorating its different ſtages or ſtories with ſmall windows, or even arcades not pierced for windows. Some of theſe old towers, built nearly 1000 years ago, exiſt

in Italy and other ſouthern countries to this day. The other elementary difference between this ſtyle and the Roman has uſually been deſcribed to conſiſt in this: that though the Romans uſed arches, they uſed them as if they were aſhamed of them, and in apparent ſubordination to the columns which they borrowed from the Greeks, except in their merely mechanical buildings, ſuch as the aqueducts: but in the Lombardic ſtyle arches are uſed boldly and openly, and columns are uſed either as pillars to ſupport the arches, or as ſhafts to ſupport ſome ſmaller and perhaps only decorative feature of the building, as they are in the Northern Gothic. There has been one very coſtly church of this kind built in this country, by Mr. Sidney Herbert, at Wilton; but I have not ſeen it, nor any good picture of it, and therefore I can give no opinion about it. But I cannot think that ſtyle a deſirable one to adopt here; for, like its ſucceſſor, the Italian Pointed, it depends for its effect in a great meaſure on the uſe of coloured marbles; and they will not keep their bright ſurface and colour in this climate, at leaſt on the outſide of buildings, nor even completely in the inſide for a long time; and beſides, they are too coſtly for general uſe. Even Mr. Ruſkin therefore, in ſpite of his prejudices in favour of the Italian Gothic, does not recommend it for adoption here, but the ſtyle called the Geometrical or Early Decorated.

As I utterly diſagree with his preference of the Southern Pointed Gothic myſelf, ſo far as I can judge of it from pictures only, I am glad to find that Mr. Scott (who has had the ſame means of judging as Mr. Ruſkin) has expreſſed a very decided opinion in favour of the ſuperior grandeur of the Northern; and ſo has Mr. Street in a book which he

has juſt publiſhed on the architecture of Italy: and in the addreſs at the opening of this year's ſeſſion of the Inſtitute of Architects I ſee the preſident deſignates the Venetian as the uglieſt of all the forms of Gothic, though he is finding fault with his brethren for not paying ſufficient attention to Italian architecture in general. Mr. Scott however ſuggeſts that ſome of the features of the Southern Gothic might be advantageouſly adopted or incorporated with our own. I ſee no reaſon why they ſhould not; but I ſhould be ſorry to ſee the introduction of anything with an appearance ſo contrary to the mechanical conditions of a prop to ſupport a weight, as the deeply twiſted pillars of which you may ſee ſeveral examples in Mr. Ruſkin's books, and one ſtill worſe, of a pillar pretending to be tied in a knot.

In contraſting the Southern and the Northern Gothic, we may ſay that flatneſs of ſurface was the characteriſtic of the former, and unevenneſs of ſurface, and projection both of ornamental and conſtructive details, of the latter. Nearly every illuſtration which is given in the Stones of Venice of the northern and the ſouthern mode of treating the ſame ſubject, led me to juſt the oppoſite concluſion to that intended by the author; and as for the *veneering* of brick walls with thin ſlabs of marble, if it was made apparent (as by ſetting them with their longeſt length upright), it would only ſuggeſt to me the idea that they were in conſtant danger of ſplitting off from the wall, as indeed they often have done; and if the veneering is not apparent, then it is ſtill more to be condemned, as a falſe pretence of ſolid blocks of marble. Mr. Scott, I am glad to find, is as little diſpoſed to approve of this Italian practice as I am.

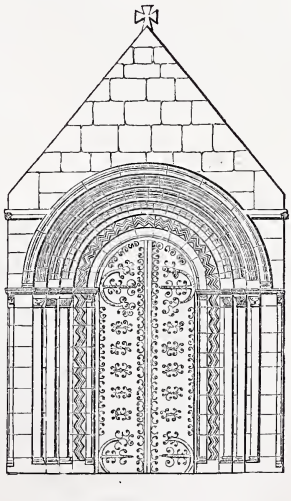
The Northern ſtyle which moſt nearly correſponds to

the Romaneſque (not the *Pointed* Italian Gothic) is the Norman. We know that there was at leaſt one Norman Church in Doncaſter, the arches and pillars of which were revealed when the old Town-hall in the Market Place was pulled down: that was the Church of St. Mary Magdalene, of which a deſcription was publiſhed by the Rev. Edward Jackſon ſoon after its diſcovery. It ſeems probable that there was another, and that a Norman Church of St. George periſhed in that earlier fire which is recorded to have deſtroyed the whole town in 1204; juſt after the Norman ſtyle had been ſupplanted by the Early Engliſh.* This old Norman Church would probably have a low tower, not more than one ſquare high above the roof; indeed thoſe which were merely lanterns at the interſection of the croſs in large churches, and not belfries at the Weſt end, ſometimes roſe very little above the ridges of the roofs, the windows being on each ſide of the ridge and of courſe below it; as at Ripon, Wincheſter, and Peterborough, and

* I ſay this not forgetting that Mr. Scott was of opinion that the Early Engliſh body of the old church was built between the years 1190 and 1200; and if ſo, of courſe, as Mr. Jackſon ſays in his Hiſtory of St. George's Church, no *Norman* Church could have been deſtroyed there in 1204. But as there is a diſtinct record that the whole town was *funditus combuſta* at Eaſter 1204, and there were bits of broken Norman work built into the walls of the old Church, it ſeems to me a great deal eaſier to believe that this architectural diagnoſis is wrong by five or ſix years, than that the church both eſcaped the general conflagration, and alſo eſcaped having its ſingular deliverance noticed in that ſame record. It has been remarked too, I think by Mr. Scott himſelf, that the changes of ſtyle often made their appearance later in the North than in the South of England; and ſo that which would paſs for work of 1190-1200 at Canterbury, may very well have been built in 1205-15 at Doncaſter.

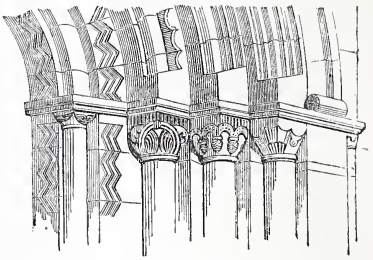
even in a later ſtyle at Beverley and Weſtminſter; not to mention other churches, where nothing more than the ſame kind of low central lantern was evidently intended when the tower piers were built, though it may have been afterwards raiſed to a much greater height. Some of the Norman towers indeed, both central and Weſtern ones, were carried higher, and a few remain highly decorated all the way up. The beſt ſpecimens I believe are at Caſtor in Northamptonſhire, St. James's tower at Bury St. Edmund's, and St. Peter's Church at Northampton. Whether they were high or not, the Norman towers were generally very broad, as indeed a *bonâ fide* central tower muſt be, and even a Weſtern tower ought to be: but of that I ſhall have more to ſay in a ſeparate lecture about towers.

The moſt highly ornamented part of Norman churches was generally the doorway; and many of theſe remain, covered with a vaſt quantity and variety of ornament even in buildings of which all the reſt is plain. Here is one, with an enlarged view of its mouldings, of which I happen to have the cuts. I am not however profeſſing to give you, what you will find very ſufficiently done in Rickman and other books, a deſcription of the details of the different ſtyles, beyond what is neceſſary to enable



Sempringham Church, Lincolnſhire.

you to go along with me in coming to a concluſion as to the beſt ſtyle to adopt for building ſuch a Church as this of Doncaſter; and therefore I ſhall not dwell on the character of the Norman ſtyle of decoration, further than to remind you that it was very bold and rough, and conſiſted not only of the imitation of natural objects, both animal and vegetable, in great profuſion, and the former perhaps more than in the later ſtyles; but it alſo contained a number of purely artificial forms, deſcribed by the names of zigzags, billets, &c., which produced a very rich and pleaſing effect. I mention that becauſe I want to found a remark upon it. Mr. Ruſkin has ſaid in his Seven Lamps, what would be very true but for a little exaggeration, that *all* the forms of ornament which are pleaſing are copied from nature. For ſome forms however which he admits to be ſucceſsful and pleaſing, he is obliged to reſort to very recondite natural examples, ſuch as cryſtals of biſmuth; and for ſome he would be puzzled to find any examples at all in nature. Now it ſeems to me a much better account of the matter to ſay, what I am ſure is true, that the eye is naturally pleaſed with the contemplation of many ſimple geometrical forms. The ſtyle called the Geometrical Decorated, Mr. Ruſkin himſelf thinks, as I do, the moſt perfect of all the Northern Gothic ſtyles; and its leading characteriſtic is the arrangement of the window-tracery in circles



Sempringham Church, Lincolnſhire.

and other geometrical figures. In the Norman ſtyle more than any other the ornaments conſiſt of geometrical patterns, beſides animal and vegetable forms, as you may ſee at once in any of the common pictures of doorways, arcades, pillars, or any other decorated parts of Norman buildings.

As I made a remark a little while ago on the unmechanical character of the deeply twiſted pillars of Italian Gothic, I will make another on the ſuperficial twiſted bands which are a common ornament of the large Norman pillars, ſuch as thoſe in Durham, and Peterborough, and ſeveral other cathedrals and large churches; and that is, that theſe Norman pillars are not open to the ſame objection as the Italian; becauſe it is always quite apparent that it is the bands only which are cut in a twiſted form upon the pillar, and not the body of the pillar itſelf profeſſing to be twiſted, as if it had been of iron inſtead of marble. A twiſted pillar is very little ſtronger than the core or cylinder which would be left if you ſhaved off all the marble that gives it the tortuous appearance. You might do this to a Norman pillar without leaving it at all too weak in appearance; in fact the ſuperfluity of ſtrength is enormous; but you could not cut off the tortuoſities in moſt of the Italian ones of the ſame kind without leaving a mere ſtick. In ſhort this ornamentation by twiſted bands, and a variety of other patterns, which are found in none of the later ſtyles, is admiſſible and moſt effective in the Norman becauſe of its peculiar maſſiveneſs, and it diſappeared as the pillars got thinner, even before the next ſtyle came in. The twiſted ſhafts of the new and beautiful reredos at Ely are equally free from objection; becauſe they have evidently very little weight to carry, and the twiſting is not too deep.

Why then is the Norman ſtyle not to be recommended for adoption now? For ſeveral reaſons. Firſt it was eſſentially imperfect, and wanted the grandeſt elements of perfect Gothic; the round arch being both inferior to the pointed arch in beauty, and of nothing like the ſame capacity for all poſitions and circumſtances; and the windows being nothing more than ſmall openings in the wall with round heads, as tracery did not come in till the next ſtyle but one, except in the circular or wheel windows, of which a few exiſted in Norman times. Perhaps it is hardly fair to mention the enormous thickneſs of the piers or pillars as an objection to the ſtyle, becauſe they were getting thinner in its later periods. The pillars in the Galilee or Weſt chapel of Durham, though ſupporting pure Norman arches, are as thin as they would have been 200 years later, while the pillars of the body of the ſame cathedral are about the thickeſt in England.

But there is another and a very different reaſon why it is hopeleſs to attempt to build Norman churches now. All the Norman ornamentation was done by men whoſe powers of deſign were far above their powers of execution, or their heads much better than their fingers. Now, juſt the contrary is the caſe. The men who carve mouldings and ornaments now, (with ſome recent exceptions in a particular line, which I ſhall notice hereafter,) do not conſider, and are not allowed to conſider it their buſineſs to think at all what they are doing, beyond following the pattern which is given them as exactly as they can. On this ſubject you will find much that is worth reading and ſeriouſly attending to in that little tract on the Nature of Gothic which I referred to before, as well as in the Seven Lamps of Architecture. I

believe alſo that Mr. Ruſkin's view of the bad moral effect upon the workmen of executing ornaments on this 'ſervile' Renaiſſance principle, (which this preciſe and machine-like mode of execution is,) is perfectly correct. At any rate I had come to the concluſion for myſelf before his books were publiſhed, that whatever there may be of good deſign in any modern Gothic work is invariably ſpoilt, and made as tame and monotonous and ineffective as the plaiſter capitals of the twenty Grecian pilaſters round this room,* by that vile and ſtupid proceſs which is called 'finiſhing;' which means going over all the ornamental ſtonework after it is brought to the proper form, and putting on it as uniform a ſurface and as ſharp and ſtraight edges, as fingers, chiſels, and other ſtill finer tools can make.

I remember two things in particular which tended ſtrongly to confirm me in that impreſſion; and although of no conſequence in themſelves, it may be of ſome uſe to mention them, as you may eaſily apply the ſame teſt to ſatisfy you. I happened to be looking cloſely at the ornamental work, a kind of ſquare zigzag (I don't know the technical name of it) round a door in Kirkſtall Abbey; and I obſerved that every turn of the zigzag, where a modern maſon would have been expected to make as ſharp a corner as if it was formed of two fillets of wood 'mitred' together, was made juſt the contrary of ſharp, ſo as to give exactly the oppoſite appearance to that of being a number of ſeparate bits joined together. It is clear alſo that in this and all other ornaments of the ſame kind, including the

* The Town-hall at Doncaſter; or any where elſe, if you like; for the remark would apply to almoſt every public room in England.

'toothed ornament' of the following ſtyle, the old carver never cared about making every ſimilar piece exactly alike, or even exactly of the ſame ſize, but went on cutting one after another juſt as they came, and ſo putting in juſt as many as he found there was room for by the time he had come to the end: whereas a modern workman thinks, and ſo apparently does his maſter the architect, that he has not done his work fit to be ſeen if he has not ſcrupulouſly divided his ſpace into exactly as many equal parts as happen to be ſhown in his drawing, and then marked out each of thoſe parts again by as many lines as he can draw, ſo as to produce ſo many bits of ornament all exactly of the ſame ſize and ſhape, and each ſide of each bit of ornament exactly like the other, as if they had been turned out of a mould at ſo much per thouſand—except that the ſteam-engine and the mould would have done them much better, if preciſion is perfection.

The ſecond caſe I have to mention was this. I had ſucceeded a few years ago in convincing a friend of mine, who was building a church of pretty good deſign, that (as uſual) all the window mullions, and indeed all the ſtone-work, were being ſpoilt by 'finiſhing' with that broad chiſel which the maſons think eſſential, except where the finiſh is to be ſtill finer; producing what has been happily called 'corduroy work,' which I ſuppoſe the workmen originally copied from their own trowſers. He ſaid it was eaſy to ſee that that was wrong when it was pointed out, but he wanted to know what was the right way of finiſhing the ſurface. I replied that it was the buſineſs of the architect and not mine to find that out, as he profeſſed to be building a Gothic church, and he muſt know very

well, if he had uſed his eyes, that he could find no ſuch finiſhing as that in any genuine Gothic building. But on looking round I ſaw a piece of moulding lying on a block, which appeared to me exactly what it ought to be, and I ſaid ſo. The man who was at work upon it immediately corrected me by ſaying that that was 'not finiſhed:' in other words, it was not ſpoilt. It was *done;* that is to ſay, it was cut to the right ſize and form, but according to the modern faſhion it wanted 'finiſhing,' either by ſtriping it with corduroy, or (if it had been a finer ſtone, ſuch as we are uſing at Doncaſter) rubbing it with a file, or a drag. This at once revealed to me the whole ſecret: but it does not appear to be yet revealed to the architects; I am afraid I muſt ſay, not even to the few who have learnt to condemn the corduroy work, as well as the ſtill more abominable ſmooth rubbing which uſed to be practiſed a few years ago even in what were facetiouſly called reſtorations of Norman work. Of courſe, if any kind of ſmooth and regular and machine-like working of the ſtones is wrong in reſtorations of the later and more elaborate ſtyles, it is ten times worſe in the Norman, where everything was rough, bold, and coarſe: and for this reaſon the modern attempts at building in the Norman ſtyle are the greateſt failures of all. Even when great pains have been taken to copy the old execution of the parts ſtill remaining, there is a ſtiffneſs, or as we may call it, an exceſs of artificial roughneſs, very different from the natural roughneſs and want of finiſh of the genuine Norman. Still the improvement of late years, at leaſt under ſome architects, has been very great; and it requires cloſiſh ſcrutiny, in the laſt Norman work done at Ely, to diſtinguiſh the new work from the old. I ſhall

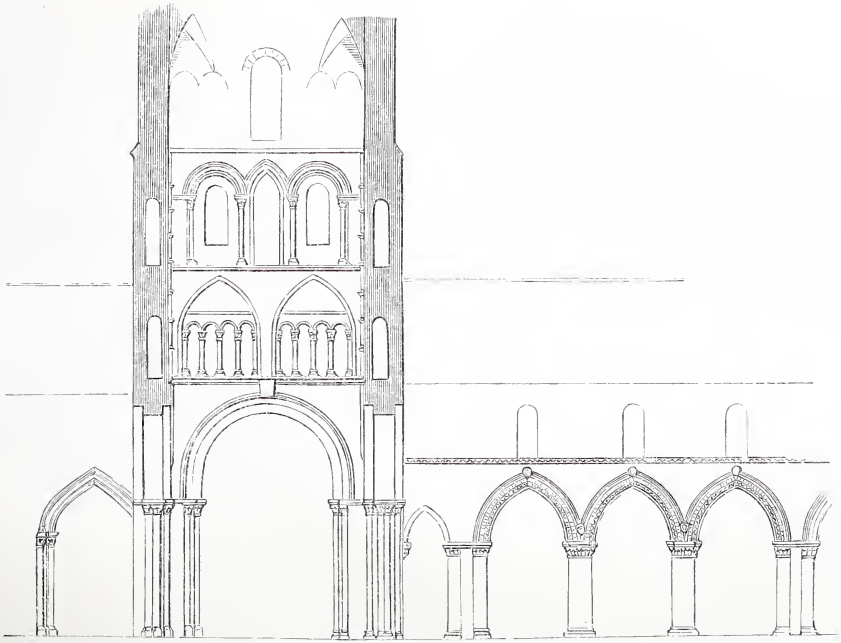
have more to ſay on this ſubject of finiſhing in the fifth lecture, and ſo for the preſent we will leave it, with the remark that thoſe who are fond of high finiſh, may have as much of it as they like in the Claſſical or Renaiſſance ſtyle, which (as Mr. Ruſkin ſays) is not merely different but oppoſite to Gothic in its moral no leſs than its phyſical characteriſtics: indeed they are ſo much oppoſed, that I am convinced that no one man can deſign or execute them both with the ſpirit which is eſſential to ſucceſs in anything; for if he really likes one he is ſure to diſlike the other, and is therefore unfit to undertake it. Art above all things muſt be a labour of love to be ſucceſsful. Certainly the identity of authorſhip of the Reform Club and ſome other very good buildings in that ſtyle, and the Houſes of Parliament in what profeſſes to be Gothic, affords no contradiction to this maxim.

The next ſtyle in point of date, in which this church might have been built, is that in which we now know that the old one was built: I mean the Early Engliſh. You are probably aware that other names have been propoſed for this and the ſucceeding Gothic ſtyles; but none of them have ſucceeded in ſupplanting the old Rickman terms, as they are called; nor in my opinion is there any reaſon why they ſhould. As to what is called the Norman ſtyle, there is no queſtion that it *was* the Norman ſtyle. The Early Engliſh too *was* the earlieſt purely Engliſh ſtyle, and it never flouriſhed anywhere elſe, except to a ſmall extent and with ſome differences from ours in the northern parts of France. Rickman's 'Decorated ſtyle' is certainly too comprehenſive a name, for it really compriſes two ſtyles of

extremely different characters; and he himſelf divided it into the Early or Geometrical, and the Late or Flowing Decorated; but I think he did not diſcern the radical difference between them, as clearly as it has been ſince diſcerned. Without promiſing never to uſe the term Decorated with reference to either or both of them, it will probably tend to preſerve more correct ideas if we omit the word Decorated generally, and call the early diviſion of it ſimply the Geometrical, and the late diviſion the Flowing ſtyle. Laſtly, what Rickman called the Perpendicular ſtyle cannot well have a more diſtinctive name, as it calls attention at once to the leading feature of the ſtyle, viz. the Perpendicular lines which prevailed in moſt of its ornamentation, and above all, in the window tracery. The terms Firſt Pointed, Middle Pointed, (otherwiſe called Second Pointed,) and Third Pointed, which ſome writers have tried to introduce, convey no more diſtinctive ideas than the A and B ſtreets in New York; and Middle Pointed involves even more confuſion than Rickman's Decorated; inaſmuch as there is no incongruity in ſaying 'Early or Late 'Decorated;' but the terms 'Early Middle Pointed,' and 'Late Second Pointed,' which thoſe writers are driven to for the purpoſe of expreſſing what they mean when they want to talk of the Geometrical and the Flowing ſtyles, are very little better than a 'two-horned unicorn,' and are far more clumſy as a deſignation than ſuch an unicorn (if he exiſted) probably would be as a beaſt, uſing three words in each caſe to expreſs what is much better expreſſed otherwiſe by one. This laſt objection may, to be ſure, be got over by calling the four ſtyles of Pointed architecture, firſt, ſecond, third, and fourth: but the fourth muſt then be the ſame as

the third in the other ſet of names, and the third a part of the other ſecond, and nobody can tell which you mean; and the names themſelves have no diſtinctive meaning whatever: whereas Early Engliſh, Geometrical, Flowing, and Perpendicular, pretty well explain themſelves, admit of no confuſion, and are already perfectly familiar to everybody who has ever read a book about Gothic architecture; and therefore I ſhall uſe them, and no others, except the old term Decorated occaſionally when I do not want any more preciſe diſtinction. But for another reaſon I think it deſirable to uſe it as little as poſſible, viz. that it gives people the idea that a building in that ſtyle requires more decoration than in the others; whereas the contrary would be much nearer the truth. For nothing can be more miſerable and un-Gothic than a church in the uſual modern Early Engliſh ſtyle, which many architects ſeem to think they have accompliſhed when they have built ſome plain walls with a few plain lancet windows, and not a pennyworth of ornament about them: whereas equally plain walls with Geometrical windows would do very well; and many of the old Decorated churches were of very ſimple character. And thoſe which were loaded with ornament from head to foot, as we may ſay, were all in the Perpendicular ſtyle: which for that reaſon Rickman called alſo the Florid ſtyle in its later ſtages.

The Early Engliſh ſtyle then was the firſt in which the round arch was completely ſuperſeded by the pointed. You obſerve I do not ſay it was the firſt in which pointed arches were uſed; for perhaps there never was a time after arches were invented in which pointed arches did not occur occa-

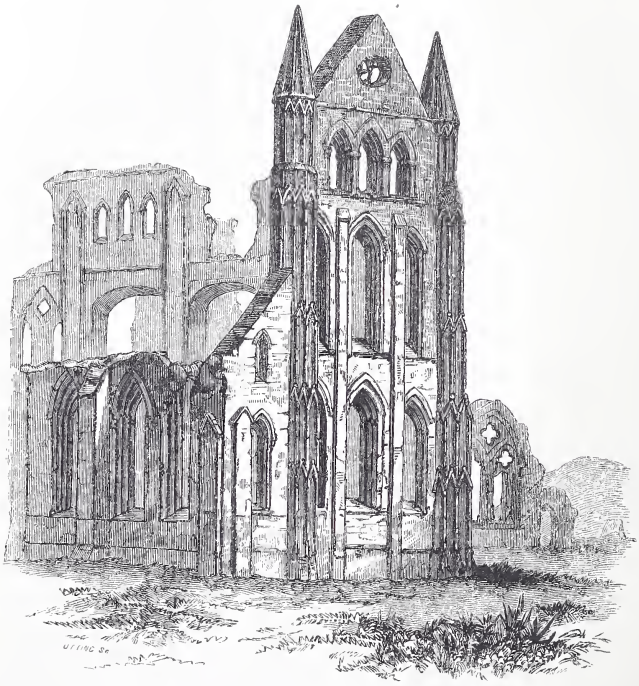


Section of Wimborne Minster.

ſionally. They were certainly uſed in ſome of the Roman aqueducts. I do not remember a pointed arch with curved ſides in any of the pictures of the few Saxon churches or towers which remain. But the moſt rudimentary form of all arches, viz. two large ſtones reared up againſt each other over an opening, like the timbers of a roof, is in fact a pointed arch ; and ſuch arches appear not unfrequently in the Saxon buildings, though the more uſual form of their arches was round like the Norman, and ſometimes where the opening was ſmall, the whole arch was cut out of one ſtone ; not that that really is an arch in conſtruction, but only in appearance. In Norman buildings pointed arches occurred conſtantly and inevitably, from the interſection of round ones in the moſt common form of their ornamental arcading. Some years ago it uſed to be thought, not unnaturally at firſt ſight, that pointed architecture aroſe in that way ; but Dr. Whewell and others ſhowed the fallacy of that hypotheſis by the fact that the very interſectional pointed arches which had been referred to in ſome Norman buildings as proving this to have been the origin of the Pointed ſtyle, occur in the lower ſtories, while round arches were continued above them, as if the builders had never ſeen a pointed arch. Here are ſeveral inſtances of it in a ſingle Norman Church of which I give a ſketch. The truth is that the pointed arch remained in uſe for ſome time in ſubordination to the round arches of the Norman ſtyle, before it was ſeized upon and expanded as the great element of conſtruction, juſt as round arches were uſed by the Romans in ſubordination to the columns which they borrowed from the Greeks, for many years be-

fore it was perceived that the arch poſſeſſed far grander elements of architectural effect than the column and entablature.

The leading diſtinctions by which everybody knows the Early Engliſh from the Later Pointed ſtyles are the narrow windows without tracery, generally called lancets, from their obvious reſemblance to that inſtrument of phlebotomy: and alſo a peculiar kind of ornament which is commonly called the toothed ornament; though rather abſurdly, for it is like no tooth of any animal in the world, and is, or at any rate was intended to be like four narrow leaves piled up together into a ſort of pierced pyramid, juſt as ſoldiers pile up three or four muſkets together on the ground. If you have any doubt about this, you need only go to Bridlington Church and look at the beautiful north porch (which will ſoon be in ruins if not reſtored carefully), and there you will ſee ſome of theſe four-leaved ornaments, with others of two ſimilar leaves cloſe beſide them. There is alſo a fine example of the two-leaved ornament given in Mr. Ruſkin's Lectures in a window of a remarkable form; and he has taken care to call attention to the 'changeful-'neſs' and the 'naturaliſm' of the carver, who has made no two of them exactly alike, and has even left an odd one at the end. I obſerved the ſame variety and intentional irregularity at Bridlington. I have alſo ſeen plenty of modern tooth ornament, and it requires ſome effort to believe that it was even intended to be the ſame kind of thing as you ſee in ſuch profuſion and with ſuch a fine effect all over Beverley Minſter and in the tranſepts of York; ſo tame and monotonous and *mouldy* does it look (I don't mean decayed—it will be better when it is, but as if it had all come

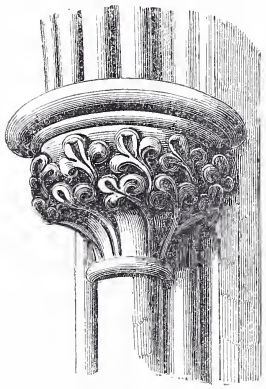


Whitby Abbey, North Transept.

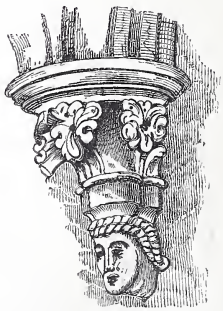
out of a mould). Of courſe it never entered into the mind of the modern builder to reflect, that as it is intended to repreſent leaves, therefore all the pyramids and all the pairs of leaves ought to be alike, juſt ſo far as all leaves of the ſame tree are alike, but ought alſo to be different, juſt as no two leaves probably of all the trees upon the earth would fit into the ſame mould. Its very plainneſs and ſimplicity makes it the more certain to be done in the mechanical ſtyle by the modern workmen, who are taught to conſider themſelves nothing but machines for cutting out ornament to order, only driven by meat and beer and unions, inſtead of water and coals and a ſtoker.

Indeed ſo far from the Early Engliſh being an eaſy or plain ſtyle, it is remarkably the contrary. In all the good buildings of that ſtyle there is great ſkill ſhown in the arrangement of the ornaments, both the purely decorative and the conſtructional ornaments, ſuch as ſhafts of pillars, doorways, &c. All the beſt parts of Beverley Minſter, and the tranſepts of York, both of them among the grandeſt Gothic work in England, are in this ſtyle. You need only go and look at it there, or even at this ſketch of one of the ruined tranſepts of Whitby, in order to judge whether it is an eaſy ſtyle to copy, and how far it is copied by the ugly ſlits in a blank wall which is the cheap modern form of Early Engliſh. You may obſerve too that the paraſitical ſhafts of pillars, window-jambs, and doorways, were more generally diſengaged, or ſtanding ſeparate, in this than in any of the other ſtyles: and they are often made of marble in buildings where there was little of carved decoration, as in the Temple Church. The foliage has been deſcribed as having more ſtalks with the leaves, and therefore bolder,

than in the later ſtyles, but at the ſame time more conventional, as it is called; probably from the art of carving not having reached the power of imitating nature as completely as in the next period. This is ſufficiently illuſtrated by the two adjacent cuts of a capital and corbel in this ſtyle.



Early Engliſh Capital.



Early Engliſh Corbel.

There are of courſe many other characteriſtics of the Early Engliſh ſtyle which you will find duly explained in Rickman and other books. It was aſcertained after the fire that Doncaſter Church had once been a complete Early Engliſh Church, before the addition of the Perpendicular tower, and the ſtill later and infinitely worſe additions of the larger clearſtory and aiſles, and other features which had given it externally a complete Perpendicular aſpect. The paper read by Mr. Scott on the ſubject before the Oxford Architectural Society is now incorporated in Mr. Jackſon's intereſting and well illuſtrated book upon the hiſtory of

the old church: for which Mr. Scott has ſupplied a conjectural repreſentation of the probable appearance of that Church in its early days. The triforium arcade of which every third arch was pierced to form the windows of the clearſtory, and which ran all round the church, and was even carried acroſs the great Weſt window of about the ſame date as the tower by double mullions and a gallery along the tranſom, muſt have been far more beautiful than anything that remained inſide the church as it had appeared for about 300 years before its deſtruction. But as everybody who is intereſted in thoſe details has probably read Mr. Jackſon's book, I will not occupy your time by dwelling on them.

There is however one more feature of Early Engliſh invention of ſuch great importance and value in architecture that I ought not to omit all notice of it here, although I intend to devote a ſeparate lecture to the ſubject before I have done: that is the high ſpire. In ſome Norman towers the roof had begun to run up into a bluntiſh ſpire, and ſuch pointed roofs were ſometimes made of ſtone; but I ſuppoſe that none of the really grand ſpires, as high as the towers that they ſtand upon, had riſen before the end of the twelfth century. That of St. Mary's, Stamford, is generally given as the beſt ſpecimen of an Early Engliſh tower and ſpire, though the ſpire there is conſidered to belong rather to the ſucceeding ſtyle, as that of Saliſbury undoubtedly does; and the Early Engliſh ſpires certainly did not riſe to the elevation and grandeur of the later ones, ſuch as, not merely Saliſbury, but Norwich, Grantham, Coventry, and Louth, the two laſt of which belong to the Perpendicular ſtyle. A vaſt number of Early ſpires of wood covered with

lead (which is a perfectly legitimate ſpire) have periſhed or been taken down to anticipate their falling; ſo that many a tower now appears ſpireleſs which was never intended to be ſo when it was built. Lincoln Minſter had three ſpires, of which the central one was nearly as high as Saliſbury, and the two others remained until the preſent century.

I felt no difficulty in anſwering the queſtion whether the Norman ſtyle is one which it is expedient to try to copy now. The anſwer is certainly not ſo eaſy with regard to the Early Engliſh. In ſome reſpects, ſuch as grandneſs of outline and boldneſs of execution, we cannot deny that it is ſuperior to them all. Mr. Scott ſays in his 'Reſtoration of 'Churches,' 'in viewing theſe glorious remains'—ſuch as Tynemouth and Byland and Glaſtonbury and Whitby and Rievaulx and Beverley, 'one is ſometimes led for a moment 'to believe that the perfection of the art' of pointed Gothic building 'is to be found in its very firſt appearance, and 'that all ſubſequent developements muſt be needleſs refine-'ments.' He goes on however to ſhow, that as we follow the further developements of the art for at leaſt another half century, we find that its courſe was ſtill upwards. Not only was the ornamentation of the ſucceeding ſtyle richer in deſign and more natural and leſs conventional in its execution, but until that ſtyle came in, Gothic architecture ſtill wanted one of the grandeſt of all its features, the large windows of many lights with tracery in their heads. Let us ſtop a little to ſee how they came in; and perhaps the inquiry will help us to underſtand ſomething more than we do at preſent of the principles on which they ought to be conſtructed.

I have mentioned already that there were circular or

wheel windows divided into a number of lights, as early as the Norman period; and there were more of them and much finer ones in the Early Engliſh ſtyle: the largeſt in England is that in the South tranſept of York, though there are much larger ones abroad, in ſome of the French and Belgian and German Churches. In the Early Engliſh period theſe wheel windows became more common, under a gable front and over a combination of ſeveral lancet windows, as in that ſame tranſept of York Minſter. Still they were all kept quite diſtinct, as you ſee in the tranſept of Whitby, of which the ſketch is given at page 59.

The firſt ſtep towards the great change was the putting two lancet windows cloſe together with an arch over them, and a ſmall circle, without ſpokes on account of its ſmallneſs, in the ſpace between the arch and the tops of the two windows. Then this proceſs was repeated, and two of theſe pairs of windows, or as we will now call them, two windows, each conſiſting of two lights and a circle, were put together, with a thicker diviſion or *mullion* between them, and a large arch turned over the whole, and a third circle, which will be twice the ſize of the two others, put under the arch; and thus was formed a window with four lights and three circles in its head, and one large and two ſmaller mullions. And again, to make a very large window, the duplication might be made once more, by putting two of theſe four-light windows together under a ſtill larger arch, incloſing a ſeventh circle again double the ſize of the laſt; and ſo would be produced an eight-light window, like the great Eaſt window of Lincoln, with four ſmall mullions, and two larger, and one larger ſtill, with ſeven circles in its head, of which the largeſt would be ſubdivided by ſpokes, or into a number of

ſmaller circles (at Lincoln there are ſeven, one in the middle and ſix round it) or into other figures; while the ſmaller circles would be decorated merely with *cuſps* or *foliation*, that peculiar ornament of ſmall Gothic arches, which had begun to appear even in the Early Engliſh period in arcades and other ornamental work, though hardly perhaps in the windows, which ſtill preſerved their plain lancet ſhape. Here is a ſimple ſpecimen of it in a ſet of *ſedilia:* the cuſp is that obtuſe angled point which comes down from each ſide of the arches.

Preſton Church, Suſſex.

Mr. Ruſkin has amuſed himſelf with giving a mechanical explanation of the poſſible origin of cuſpidation, or rather a mechanical defence of it, for he admits that 'it was not by 'any ſuch proceſs of reaſoning, nor with any reference to 'laws of conſtruction, that the cuſp was originally invented.' I only allude to it for the purpoſe of ſaying that, although I agree with him as to the decorative value of foliation of *ſmall* arches, his mechanical explanation of it and extenſion of it to large ones is entirely wrong, and that the cuſpidation of an arch built into a wall is of no mechanical value whatever; and accordingly the Northern Gothic builders never did cuſp their large walling arches, in which ſtrength is the thing to aim at, but only their ſmall ones, where nobody could fail to ſee that the cuſp is purely for ornament and not for ſupport. The Southern builders did. And Mr. Ruſkin has a right if he likes, to aſk us to admire it,

or to tell us we ought and muſt admire it: that is a queſtion of taſte; but as a queſtion of mechanics, I take leave to ſay that it is mere nonſenſe to talk of any arch which is properly built and has maſonry behind it, as all large arches have, being helped by a piece being ſtuck on to the inſide. I was much amuſed at ſeeing what is called a Lich-gate lately built, at Meanwood near Leeds, on the mechanical principles of cuſpidation applied to a large arch. I ſuppoſe the architect had been reading the Stones of Venice, and thought it would be a fine thing to ſend us down a little Venetian Gothic into Yorkſhire. He had alſo learnt enough ſomewhere to know that the large ſtones, which are all right in Italian marble, are all wrong in Northern Gothic built with the millſtone grit of Leeds, or indeed with any other ſtone. Now it ſo happens that this wonderful mechanical ſupport of a cuſp actually cannot ſupport itſelf, much leſs the arch above it, unleſs it is made of whole ſtones going right through from the front of the cuſp to the back of the arch proper, or very nearly ſo. So what does the architect of Meanwood Church do, but build his cuſp of large ſtones to make it hang together, and then mark it out by ſham diviſions into ſmall ones in order to make it look like Northern Gothic; forgetting that he thereby gave it the appearance to every mechanical eye of being on the point of falling. In fact I walked up to examine it ſo cloſely, becauſe when I firſt ſaw it, with its apparently ſmall diviſions, I could not imagine how it contrived to ſtand at all. It is only a pity that it does. Mr. Ruſkin, I ſee, boaſts of theſe things as an acknowledgment by architects that he is right. But mechanical queſtions are not exactly to be ſettled in that way.

But for all that, cuſps are uſeful as well as ornamental in their proper place. In ornamental arcades they are ſimply added for ornament; but in window tracery, which is compoſed, or ought to be, of ſtones arranged to balance each other on the principles of arcuation, there is of courſe no walling at the back of each bit of archwork; and moreover each of ſuch bits is not too large to be made of a ſingle ſtone. And here therefore the cuſp does add ſtrength, or at leaſt gives the effect and appearance of ſtrength (which is always pleaſing even to an uneducated eye), by filling up the concave ſide of the ſtone with that ſolid projection. You may ſee them in various parts of the great Eaſt window of Doncaſter, of which I have given a picture at page 71, or in almoſt any window of any period after the Early Engliſh. But even this ſimple thing is very ſeldom done well in modern architecture: they are either too ſmall, or too long, or too ſharp (as Mr. Ruſkin ſays), 'like pieces of cruſt which a cook pinches up on the edge 'of a pie,' or double when they ought only to be ſingle; or if by nothing elſe, they are infallibly ſtamped as modern by the deadneſs, preciſion, and vulgarity, which our builders contrive to impart to every deſign they have to execute even if the old model ſtares them in the face.

Inſtead of exhibiting a picture of a window ſuch as I have been deſcribing, I will aſk you to draw one for yourſelves, becauſe I know from experience that you will learn more of the geometrical principles of window conſtruction in that way than by looking at fifty ſketches drawn by other people. For the preſent purpoſe you need not trouble yourſelves about the cuſps or foliation, as that is the ornamental and not the conſtructional part of the buſineſs,

although it is perfectly eſſential to the good effect of a window of any conſiderable ſize. The ſtyle in which theſe windows came in is called the Geometrical, becauſe all the tracery patterns are regular geometrical figures, and their ſizes and proportions might be made the ſubject of a variety of problems in geometry. Other names have alſo been given to it, as you will ſee hereafter, after we have had the opportunity of comparing it with the ſucceeding ſtyles. It is now aſcertained that it began a whole reign earlier than the date aſſigned by Rickman, as records have come to light of the time of erection and completion of buildings ſuch as Merton Chapel at Oxford and others, which undoubtedly belong to this ſtyle. Of courſe no exact date can be aſſigned for the tranſition from any ſtyle to any other, as the proceſs muſt be gradual; but the beginning of the reign of Edward I. is now generally taken for the riſe of the Geometrical ſtyle, and that and its ſucceſſor laſted through the reigns of the three firſt Edwards, occupying together not quite a century therefore.

This account of the origin of Geometrical windows is not, as ſuch accounts ſometimes are, a mere *ex poſt facto* invention of a theory to fit ſuch facts as we happen to be poſſeſſed of; but if you will look through any pictures you can find of windows juſt on the verge of the two ſtyles, ſo that you hardly know whether to call them Early Engliſh or Geometrical, you will ſee this very proceſs of tranſmutation going on, from a number of ſeparate lancet windows brought nearer and nearer together, ſometimes with a ſingle arch over the whole ſet, ſometimes with none, and ſometimes with the arch ſpringing from the top of the two lancet windows, until you come to a ſingle large window com-

poſed of many lights. The beſt illuſtration of it that I remember is a picture of an eight-light window at Binham Abbey in the third volume of Britton's Antiquities; or as that is not a book acceſſible to everybody, there is an illuſtration, at page 126 of the fifth edition of Rickman, of the four-light Eaſt window of Acton Burnell Church, which will do equally well; and it is ſo early that the circles are not even foliated, and the middle mullion is ſo thick that it looks rather like a piece of the wall between two ſeparate windows. You will ſee hereafter that a rather different theory of the origin of window tracery has been propounded, but I will defer it for the preſent, as we have not yet arrived at that ſtage of the progreſs of architecture to which it properly belongs.

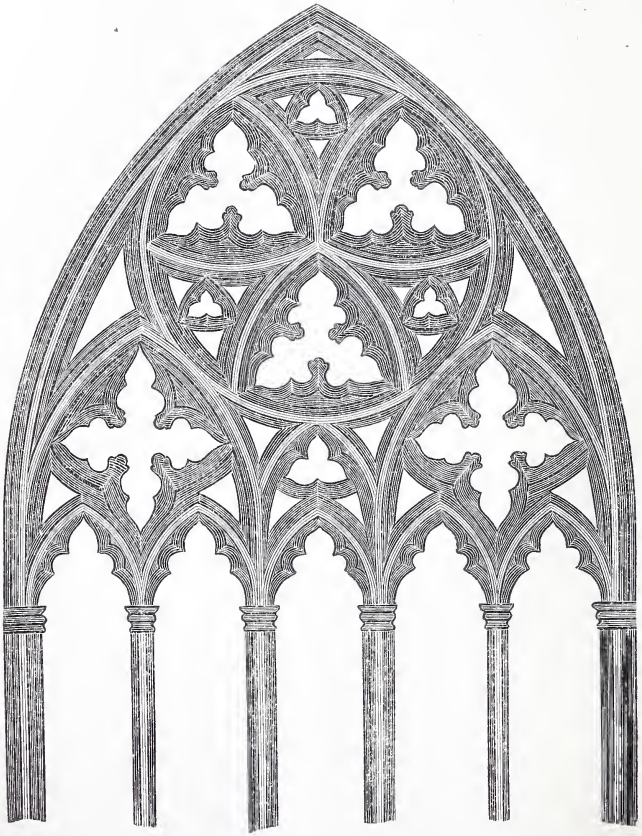
You muſt not ſuppoſe however that the method I have deſcribed is the only plan of conſtructing Geometrical windows. It is only one of an infinite number of conſtructions which that ſtyle admits; but they are all—unleſs the theory I have ſtated is entirely wrong—founded on this ſame principle of putting together a number of different patterns, each of which (except the ſmall details) might have exiſted and been uſed ſeparately. The circle naturally prevails more than any other figure in the tracery of the old windows of this ſtyle; but circles may be inſerted in the heads of windows in a multitude of different ways, and the large circles may themſelves be divided into tracery of infinite variety; and triangles, ſquares, pentagons, hexagons, and other figures are uſed, generally with curved ſides and foliated, ſo as to form what are called trefoils, quatrefoils, cinquefoils and ſixfoils. For inſtance, in the primitive conſtruction of windows by mere duplication, the circles ſtand each upon a pair of arches, and involve what is therefore

called the *ſubarcuation* principle; and they involve alſo ſome rather ugly-ſhaped corners lying between the circle and the arch which covers it. In windows of not more than four or five lights theſe corners are not ſo large and ſtriking as to be objectionable; indeed nothing can be better than ſuch a window as this, which is the pattern of the two ſmaller Eaſt windows of Doncaſter. But in ſeven or eight-light windows theſe corners are neceſſarily larger in proportion to the ſize of the lights, and I think have not a pleaſing effect. And there is another mode of conſtruction which completely avoids it, and may for want of a better name be called the high-arch ſyſtem of conſtruction. But before we go any further, I had better ſay a few words by way of explanation of the terms high and low arches.

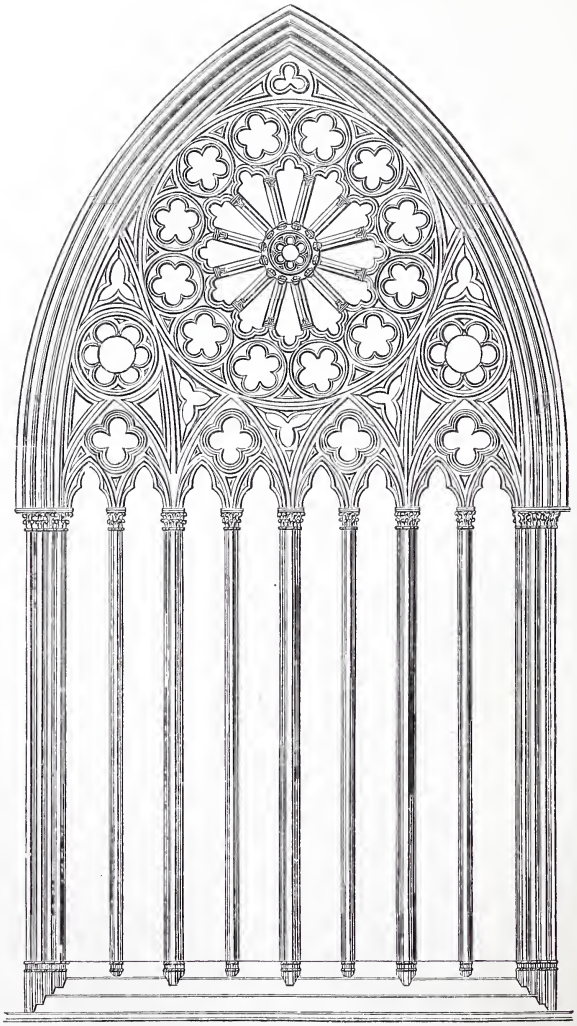
What may be called the normal or ſtandard form of pointed arch, both in the Early Engliſh and the Geometrical ſtyle, is drawn by ſimply ſetting a pair of compaſſes to the width of the window, or other opening to be arched over, and drawing each ſide of the arch with one leg of the compaſſes ſtanding at the bottom of the other; and ſuch arches are called *equilateral*, becauſe they exactly incloſe an equilateral triangle; for the conſtruction of which, this is the rule given by the firſt propoſition in Euclid. If you ſet the compaſſes wider than this, of courſe one leg will ſtand outſide the jamb while you are drawing the oppoſite ſide of the arch, and you will have an arch higher than equilateral, and ſometimes called *ſtilted;* though I think that name is better confined to the caſe where the window tracery is made to begin, or the capitals of pillars are placed a little below the bottom of the real arch; and ſometimes theſe higher than

equilateral are called *lancet* arches: which muſt not be confounded with lancet windows; for that term is applied to all long narrow windows without tracery or foliation, though their arches may be of no more than equilateral pitch. In like manner an arch lower than equilateral (which may be called ſhortly a *low* arch) is drawn by ſetting the compaſſes to ſomething leſs than the width of the arch, and ſo the centres are within the ſpan. Beſides theſe there is what is called a *ſegmental* arch, ſuch as you may ſee in the South window of the porch here. In that caſe the ſtanding leg of the compaſſes is ſet below the level of the top of the jambs, ſo that the jamb and the arch are diſcontinuous; or to ſpeak mathematically, the jamb is not a tangent to the arch. If you look at Rickman, p. 50, fifth edition, you will find that the picture he gives of a ſegmental arch would imply that it cannot be a pointed or two-centred arch, but muſt be a piece of a round or one-centred arch ſomething leſs than the complete ſemicircle; but this is not ſo. You will alſo find there ſome deſcriptions of other kinds of arches which we are not concerned with juſt now, ſuch as the four-centred arch of Late Perpendicular work; and as I am not giving this deſcription in order to teach you how to draw arches, but only to make ſure of your underſtanding the conſtruction of the arches I have to talk about, I ſhall ſay nothing about them at preſent. I muſt add that Rickman's term, *drop arch*, for what I call a *low* one, ſuggeſts the incorrect idea that the centres are dropped below the level of the top of the jambs, which they are not.

Now with reference to the uſe of the different kinds of arches, I think that in the great arches of a church, and



Side East Windows of Doncaster.



Great East Window of Doncaster.

ſtill more in the windows, a low arch never looks ſo well as an equilateral; and the occaſional uſe of high arches with equilateral ones ſometimes produces a very fine effect. They occur in the clearſtory windows of the nave of Lincoln, and in what Mr. Scott calls the lovely ruins of St. Mary's Abbey at York; and in the magnificent nave which now conſtitutes the whole of Bridlington Church, thirty feet longer than the old church here, and larger than the naves of moſt of the cathedrals, the middle one of the nine arches eaſt of the towers is made narrower, and therefore of higher pitch than the reſt; and ſo is the triforium arch and the clearſtory window over it. The moment I ſaw that arch and its ſuperſtructure, and before I had obſerved what the difference was, I was ſtruck with the beauty of it. Of courſe this admiration of high arches is a matter of opinion; but I know that other perſons whoſe attention I have directed to that point have gradually adopted the ſame opinion, though they had not thought about it before. And this alſo muſt be borne in mind: that the external moulding of an arch (which in mathematical language is called the *extrados*) is neceſſarily of lower pitch or blunter than the internal opening or *intrados*; and conſequently, if you want to avoid all appearance of low arches where you have a conſiderable depth of mouldings, you muſt make the outer ones of equilateral pitch, and conſequently the inner ones ſharper.

Now if you look at this picture of the great Eaſt window of Doncaſter, you will ſee that the principal diviſions are not conſtructed on the ſubarcuation ſyſtem, though the minor ones are. Beſides the other objection to that conſtruction in large windows, the original plan which was

propoſed in the drawings exhibited here (with nine lights), appeared to me objectionable becauſe the eye was caught by a ſet of tracery lines which gave the diſagreeable appearance of a broad and very low arch lying under the great one. I remember obſerving the ſame fault in the Eaſt window of Mr. Pugin's Roman Catholic church near Bedlam, before I had any particular opinions about high and low arches, or had conſidered the principles of window conſtruction at all. The great arch of this window of ours is ſtilted; that is to ſay, the tracery begins a little below the ſpring of the great arch; becauſe otherwiſe the ſub-arches could not have been got in under the wheel, of which the ſize is fixed geometrically by the mode of conſtruction; and the determination of its ſize and the place of its centre might form a good geometrical problem in a Cambridge examination. Even where the ſtilting is not thus rendered neceſſary by the conſtruction, it is generally an improvement to a window with very high mullions. This wheel is fifteen feet acroſs, while that for a window of the ſame ſize (twenty-two and a half feet) on the ſubarcuation principle, could only have been twelve. You may obſerve that the tracery or filling up of the wheel has been ſtill further improved ſince the firſt edition of this book was publiſhed, as I thought the outer part of it was too much cut up into little bits, and the lights made too ſubordinate to the darks, eſpecially for a window which will be chiefly ſeen from within. There is a wheel window in the ſouth tranſept of the Gordon Square Church very nearly the ſame as the former pattern of this, and it ſtrikes me as about the worſt thing in that church; where it has too the invariable modern fault of being too thin in the ſtonework: a fault which there was no other

opportunity for displaying there, as all the other windows are Early English lancets—most of them too broad for their height. The wheel in our Doncaster window is rather like that in the West window of Exeter, but I venture to think much better, both in the disposition of the small circles—which I have twisted out of the cardinal points, and still more in the filling up of the inside with spokes instead of flowing tracery.

There are several other things to be attended to before you need expect a modern geometrical window to look like an old one of five hundred and fifty years ago. First of all, the designing of the tracery is not such an easy matter as it may appear to be until you try. Of course no rules can be given for designing anything, except Renaissance ornaments. But I will take leave to point out two or three very common mistakes, as I think them, though I know precedents can be found for all of them in some old windows; but unfortunately, modern architects seem to think they are fully justified in adopting as rules what were evidently the exceptions in the practice of the old ones—perhaps tried merely as experiments, and not adopted generally because the old builders had the sense to see at once that they were not successful.

First then, it is not at all uncommon to see window tracery arranged in such patterns that it is not mechanically self-supporting; that is, the pressures produced by the arches which constitute the rims of circles and other figures are not balanced. Now although the stone may be strong enough to carry its own weight without breaking, I have no hesitation in pronouncing this to be wrong; and I do so the more confidently because I have frequently been

ſtruck with ſuch tracery as being offenſive to the eye before I had aſcertained by examination of the conſtruction what was the defect in it. I believe it may be enunciated as a pretty certain rule, that any arrangement of ſtonework which expoſes the ſtones to breaking preſſure, as diſtinguiſhed from cruſhing, or treats them as capable of reſiſting bending (except very ſhort and thick ones, ſuch as corbels for carrying beams), is wrong. There is one particular figure in window tracery which I muſt ſpecially notice, becauſe it ſeems to me to be a ſpecial favourite with the architects, and to be ſingularly abominable. It may be called the broken-backed cuſp. You know what a ſolid cuſp is. Thoſe in the picture at p. 64 were not only ſolid but plain: the next ſtep is to ſink a receſs in it as you ſee in moſt of the cuſps in the large window at p. 71; and when it is large enough, this ſunk triangle or receſs may be filled with foliage, as in the reredos, or arcade at the Eaſt end of Doncaſter Church, and alſo by the Weſt door, though at firſt it was done otherwiſe. When the ſtone on which the cuſp is ſet is very thick, there is no harm in piercing the triangle right through, provided there is ſtill thickneſs enough left in the cuſp itſelf to make it quite clear to the eye that it has been treated as a thick ſolid ſtone with a hole for light pierced through it; and provided there is room for the hole or 'eye' to be a good ſize; for very ſmall ones look paltry, and had much better be filled up. And further, if the arch belongs to an arcade ſtanding ſolidly againſt a wall and not cut out behind, ſo that the cuſp is in fact an ornament carved ſolid upon the wall, it may be thin, becauſe the wall carries it. But where it ſtands clear of the wall, as of courſe it does in window-tracery, then I ſay that a thin pierced cuſp

is intolerable, and is rightly called broken-backed, becauſe it gives the feeling that it is always going to break, as in fact it would very eaſily. Here is a ſpecimen of one in the firſt of theſe two figures. If you aſk where the line is to be drawn between thick and thin, I anſwer that I believe your eye will tell you well enough as ſoon as you have learnt to underſtand theſe things; not that there is much difficulty

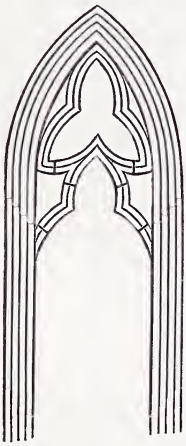


Fig. 1.

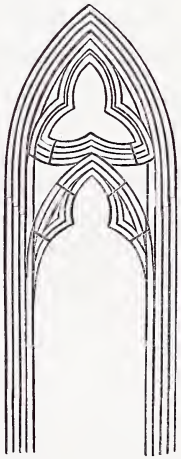


Fig. 2.

either in giving a rule ſufficient for the purpoſe, thus; if a ſtraight line can be drawn which lies conſiderably within the ſtone of the cuſp for its whole length it will do; and if not, the cuſp is broken-backed and wrong: but it is a poor ſtyle of ornament at the beſt. You may ſee the difference between the ſolid cuſps and the broken-backed ones in theſe two figures, and alſo by comparing the Weſt windows

of the two aiſles here with the other windows of the South aiſle, into the tracery of which I am ſorry to ſay both this and ſome other defects had found their way and were not diſcovered until it was too late to mend them.

And as if theſe broken-backed cuſps were not bad enough by themſelves, they are very often combined with another thing of the ſame kind over them in the window or window-light. In fact this ſeems now to be conſidered the regular and orthodox way of filling up a ſmall arch, and with all the ſtonework made as thin as is thought capable of holding itſelf together—itſelf a fatal defect, and one which would ſpoil the fineſt window that ever was deſigned. I know there are bad caſes of this kind to be found occaſionally in old work; but where a conſtruction is mechanically wrong, not even antiquity can make it right. This is a metallic and not a ſtone conſtruction: the cuſps are made the principal inſtead of the acceſſory: in fact it is a piece of tracery made up of nothing but cuſps; and if you take them away, the window or light drops into a mere lancet without any pretence of tracery. If you muſt have ſomething of this kind, as is ſometimes neceſſary to fill up an arch in a window light too high to leave open, or with ſimple cuſps, the only proper way to do it is to make a real ſub-arch, as in figure 2, at the back of the lower pair of cuſps, and alſo thicken the trefoil above until it looks like a piece of ſolid ſtonework, conſiſting of parts having a real bearing on each other and capable of reſiſting preſſure, and not as if you could knock it out with a blow of your fiſt, as you could that in figure 1, which is not at all an exaggerated verſion of ſome that I have ſeen; and which if made with joints in the tracery would almoſt blow out with the wind, whereas the other would be perfectly firm.

In ſome of the fineſt old arcades, ſuch as the cloiſters at Norwich for inſtance, the tracery is even thicker than the mullions which carry it, and which are treated as ſhafts carrying the maſs of tracery above them, and not as mullions branching out into tracery; and ſhafts carrying a weight, eſpecially if they are of marble, are always made thinner than the ſtonework above them. Even the main pillars of a church ſhould always be rather thinner than the clear-ſtory wall above them, the capitals being of courſe wider at the top than the bottom, and the ſuperincumbent wall fitting the wide top, while the pillar fits the narrower bottom. But nothing is more eſſential to the good effect of windows (except where the mullions are thus treated as ſhafts under a maſs of tracery without glazing) and nothing is ſo much neglected by modern architects, as making the mullions of adequate thickneſs. Every mullion of every window in Doncaſter Church has now been made thicker than they were originally intended to be; and ſtill ſome of them are not thick enough. And yet every architect has in his library books full of pictures of the beſt windows of the thirteenth and fourteenth century, with every dimenſion ſhown to ſcale and often figured into the bargain. That you may have ſome kind of comparative meaſure of ancient and modern practice in this reſpect, you may go and meaſure the mullions of any modern church you like (except this), and you will find them, I ſuſpect, very ſeldom more than one-ſixth of the width of the lights; probably about four inches in the ordinary ſide windows, and ſometimes leſs, and perhaps a few as much as ſeven or eight inches in large Eaſt and Weſt windows. And now obſerve the ſize of a few old ones, ſuch as I happen to have the meaſures

of. In the Eaſt window of Tintern Abbey, which had eight lights, like ours, the principal mullion was fifteen inches thick, and the two ſecondary ones eleven, and the four ſmalleſt very nearly eight inches. That of Guiſborough Priory, which (as Mr. Scott ſays in his book on the Reſtoration of Churches) muſt have been one of the grandeſt buildings of the Geometrical ſtyle in this country, had only ſeven lights, though it was a very little wider than ours, but a good deal higher, and therefore requiring wider lights for proportion; and it had *two* principal mullions, both as thick as the middle one at Tintern. The great mullion of that Eaſt window of Lincoln which I have already deſcribed, about half as large again as ours, appears from a drawing which I meaſured to be full two feet thick. Even the two ſmall Eaſt windows of Guiſborough with only three lights had nine-inch mullions; and thoſe at Tintern ſeven, to which our aiſle windows have been now increaſed. There are alſo ſome four-light windows at Whitby with the middle mullions about thirteen inches; and Mr. Scott very candidly tells me that he has now found that even thoſe of the ſhort clearſtory windows of Bridlington are above a foot thick.

I am ſatisfied from theſe and other examples in old Churches and in Doncaſter new church, that no mullion ought to be much leſs than one-third of the width of the adjacent light. The lights of the ſmall Guiſborough windows are exactly three times the width of the mullions; the aiſle windows of Selby I think are the ſame; and thoſe of Doncaſter are only one inch more than this proportion. And where there are more lights than three, and therefore two or more claſſes of mullions are required, the larger ones

muſt be conſiderably more than this, as the above-mentioned inſtances amply prove, though they do not furniſh a general rule for the amount of increaſe, which muſt depend on the number and arrangement of the different orders of mullions, and that depends on the pattern of the window. And in all caſes it appears that the depth from back to front ought to be at leaſt twice the width or thickneſs from ſide to ſide. I know that there are old Geometrical windows to be found with what I ſhould call thin mullions, though a modern architect would probably conſider them thick. But I ſay of them as of ſome other things, that they were not the rule but the exception; and that you have only to ſee the two together to determine which is the beſt; and therefore except for the abſtract pleaſure of doing the wrong thing when the right is juſt as eaſy (which really ſeems to be an enjoyment to a great many people), I can conceive no reaſon why in modern times we ſhould have ſo determinedly and ſyſtematically adopted the exception and rejected the rule.

And they have done the ſame in another thing of equal importance to the good effect of windows, at leaſt of all windows with many lights; for it is not of the ſame conſequence in the narrow Early Engliſh windows, and ſtill leſs perhaps in Norman: and that is that they ſhould be ſet deep from the outſide. In the great majority of old buildings in the Geometrical ſtyle they were ſo; and in the few where they were not, I believe the ſhallowneſs may always be accounted for by that which proverbially overrides all rules—neceſſity; ariſing from the fact that the middle of the wall was occupied with a paſſage along the lower part of the window, and ſo it was neceſſary to puſh the window

further out to make room for it. And even then, the windows were ſet as deep from the outſide as they could poſſibly get them; for the inſide wall of the paſſage was made as thin as was ſafe, and ſometimes the paſſage itſelf was alſo twiſted at each ſide of the windows, ſo as to take off no more than the thickneſs of a baluſtrade on the inſide of the window, beſides what was barely enough to walk along. The general rule ſeems to have been to put the windows in the middle of the wall; and as the walls containing large windows were ſeldom leſs than four or five feet thick, and often more, you ſee that the glaſs would be from two to three feet from the outſide face of the wall, and even ſmall windows in three-feet walls would be eighteen inches deep. Not that there is any reaſon to ſuppoſe that the Gothic architects attached any particular virtue to windows in the middle of the wall, except ſo far as it generally gave them depth enough outſide, becauſe their walls were always thick enough to do ſo. And we had a very ſtriking proof in the old Church here that they did not care about the poſition, but that what they wanted was the depth; for the upper windows of the tower were ſet ſo deep that the mullions came fluſh with the inſide face of the wall; the architect having borne in mind, among the many minute points which we find had been attended to in its conſtruction, that the walls of the tower got thinner towards the top by reaſon of the external ſet-offs, and that the upper windows were larger than the lower, and required greater depth for the proper effect, and ſo that depth could only be got by ſinking them much deeper into the wall than even half the thickneſs. None of the pictures of the Church properly repreſented this great depth of the tower windows.

But even if the poſition and not the external depth had been the thing regarded by the old builders, it would be no excuſe for the practice of the modern architects, who have taken upon themſelves to correct their maſters in this no leſs than in the matter of mullions. Beſides having theſe old examples which they profeſs to copy, I ſhould have thought it might have occurred to them, that without ſinking their windows deep, they cannot have the depth of ſhadow which they know very well is eſſential to the effect of any Gothic building; for they ſhow that they do know it by taking care always to give it in the perſpective views which they prepare for exhibition. But when they come to their plans and ſections, they ſtraightway forget all about it; and the modern walls being almoſt always thinner than the old ones, they ſet their windows, not in the middle—that would be bad enough in thin walls, but actually twice as near to the outſide as to the inſide of the wall, frequently even fluſh with the outſide: a practice which I ſuppoſe they have got into their heads from the Renaiſſance ſtyle, which we find at every turn infeſting and ſpoiling the deſigns and the practice of thoſe who profeſs to be building Gothic and not Græco-Italian Churches.

I have heard the excuſe ſet up for it, that they want the depth in the inſide, and that with thin walls you cannot have it both ways. In the firſt place I do not believe that that *excuſe* is the *reaſon* at all; becauſe I do not find that even where they have had plenty of thickneſs given them, they have availed themſelves of it to ſet the windows deep from the outſide. But again I ſay that thin walls are no excuſe, becauſe the internal effect does not depend on the depth of the windows to anything like the ſame degree as

the external effect does; for the ſimple reaſon that on the inſide the light comes *through* the windows from the outſide, and very nearly as much whether they are deep or ſhallow, but on the outſide the light falls *upon* the windows, and you do not ſee through them, and therefore the great ſhadows depend on the diſtance of the glaſs from the outſide of the wall, and the ſmaller ones on its depth from the outſide edges of the mullions; and as the mullions are never as deep from inſide to outſide as the wall is, it neceſſarily follows that their outſide edges ought alſo to be a good way within the ſurface of the wall. It is evident that the ſmaller the window is the leſs depth it generally requires, and that is the reaſon why the narrow Early Engliſh and ſmall Norman windows were often ſet at no great depth: though even they were often ſet deeper in large buildings of much decoration, than modern windows of four times the ſize and number of lights. Some of the Norman windows in the clearſtory of Ely have been very much improved by ſetting the glaſs further back. This defect, I am happy to ſay, we ſhall not have to complain of in Doncaſter Church, and I believe it will have the credit of being the firſt modern church without it; and for this and preceding reaſon it will be the firſt in which there have been any large windows with any real pretenſion to be called Geometrical Gothic windows at all.

If you want to ſee the difference between good and bad windows ſtrikingly exhibited in the ſame church, you need only go and look at the choir of Selby; for there you will ſee, in the north aiſle, a ſet of windows of no more than three lights, and thoſe rather ſhort ones, and tracery of the ſimpleſt poſſible pattern, much the ſame as thoſe at Guiſ-

borough, with only three quatrefoils in the head, and yet perhaps the moſt beautiful windows of the ſize to be found anywhere; and above them in the clearſtory you will ſee windows of four lights and much more elaborate tracery (in the Flowing ſtyle), and yet almoſt as ill looking as any modern ones, except to be ſure that they have not been 'finiſhed.' What is the reaſon? Why, that the lower windows are deep ſet, and have thick mullions and tracery, and high arches, whereas the others are very ſhallow (on account of the paſſage in the wall), the mullions are thin (though a modern builder would call them thick) and the arches are low. The North aiſle windows of Doncaſter are nearly copied both in pattern and proportions alternately from that ſame North aiſle of Selby, and from Guiſborough, and they are not unlike the South windows of Lichfield, which have been lately reſtored. Theſe too are all ſhort in the lights, as ours are. They are much plainer than the South aiſle windows; but I know of nobody who has ſeen them, and has not conſidered their bold and thick tracery very ſuperior to the more highly decorated and but more attenuated filling up of the oppoſite windows on the South ſide, which are unfortunately more conſpicuous.

I need not ſay much about the ornamental carving of the Geometrical period, which is well known to have been the beſt. I have already obſerved that until this time it had ſcarcely ceaſed to be what is called conventional rather than an actual imitation of nature. But there was it ſeems during the tranſition, a queer kind of mongrel vegetable ornament (uſed more I believe abroad than in England), conſiſting of a natural leaf ſtuck flat againſt the end of an extremely conventional ſtalk; if that can be called a ſtalk

which is more like a piece of celery ſix times as thick as any ſtalk of ſuch a leaf could be, and which ſupports the leaf at the back inſtead of the edge. I confeſs I think it very ugly as well as abſurd, and it is with no goodwill of mine that there is ſuch an efflorescence of it all over the cornices here, or at leaſt ſo much of them as is done at the time I am writing. I have the ſatisfaction however of believing that I have prevented there being a great deal more. I cannot draw it ſo as to do juſtice to its uglineſs; ſo I leave the architects whoſe taſte it ſuits to give the moſt flattering repreſentation of it they can.

But before we leave the Geometrical ſtyle, I ought to mention one more ornament which is as peculiar to this ſtyle as the toothed ornament is to the Early Engliſh, and as eaſy to diſtinguiſh when it occurs. I mean that which is called the ball-flower ornament. You will find pictures of it in all the common books: and it conſiſts merely of a ſmall ball which appears to be ſlit open with an irregular kind of triangular diviſion, making it look as if it was a bud juſt opening into three leaves. They were ſet, not cloſe together like the tooth ornament, but at a little diſtance—ſomething like buttons, along the mullions of windows, the edges of buttreſſes, and on mouldings and cornices. Like the toothed ornament it requires a conſiderable quantity together to make it effective. I ſuppoſe it would be rather expenſive to work, as a great deal of ſtone would have to be cut away and very little left; and beſides, the modern maſons would be ſure to make the flowers all as exactly alike as buttons out of a mould at Birmingham; and ſo on the whole, perhaps the money that it would coſt may be ſpent more effectively on ſome other kind of ornament.

This ball-flower appears to have grown chiefly in the Weſt of England: at leaſt the moſt famous examples of it are there. The beautiful windows of the South aiſle of Glouceſter and the buttreſſes of the tower of Hereford are covered with it, and it gives them a very rich effect.

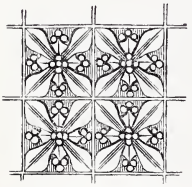
And now, having ſaid all that ſeems neceſſary for the object of theſe lectures about the Geometrical ſtyle, and having arrived at what you will find to be an important criſis in the progreſs of architecture, we will ſtop for the preſent, and reſerve for the next lecture the conſideration of the nature of that criſis, and the peculiarities of the two remaining Gothic ſtyles.

LECTURE III.

ON THE LATE GOTHIC STYLES.

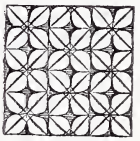
I SAID at the end of the laſt lecture that the change from the Geometrical to the Flowing ſtyle was a great criſis in the hiſtory of Gothic architecture, although the ſmalleſt in appearance of all the changes from one ſtyle to another. I do not mean, that at this epoch any great and ſtriking ſtep was made, like that of the adoption of the pointed arch or the high ſpire, or the combination of narrow windows of one light into large windows of many lights with tracery above them. On the contrary, the period we have now arrived at (which it ſeems may be defined as the beginning of the reign of Edward III., A.D. 1327) was a critical one, becauſe Gothic architecture then for the firſt time began to change *without* adding any freſh elements of conſtruction or decoration. It ſeemed as if there was nothing more for it to graſp. The windows (which throughout all the ſtages of Gothic are the leading features of decorative conſtruction) had become as large as was conſiſtent with leaving any appearance of ſolid wall between them. The towers and ſpires had reached the greateſt height of which they

were capable: witneſs, Lincoln, Saliſbury, and Grantham. The carving of all the ornaments, whether animal or vegetable, had become as perfect as it ever became, both in deſign and in execution. Beſides the ornaments which I have already mentioned, there was another, ſpecially deſigned for the decoration of plain wall ſurfaces, called diaper work, conſiſting chiefly of flat or widely opened flowers lying cloſe together in patterns of infinite variety.*



Weſtminſter Abbey.

Hatfield Broadoaks Church, Eſſex.



St. Albans Abbey Church.

The ſhafts of pillars and mouldings of arches had attained their greateſt richneſs, and roofs their greateſt height, viz. the equilateral pitch, and ſometimes even higher. Whether any further advance could have been made if the genius of the fourteenth century had been equal to that of the thirteenth, it is impoſſible to gueſs; but in point of fact, no further advance was made. Henceforward there ſeemed nothing to be done except gradually varying the exiſting features of Gothic architecture, and generally by what was

* There are no leſs than eight different diaper patterns copied in Rickman from a ſingle Croſs, at Geddington. Theſe three cuts will give you an idea, though an imperfect one, of the nature of this kind of ornament.

worſe, more lifeleſs, meagre, and monotonous, eſpecially when the Perpendicular ſtyle ſet in. Then the towers were more frequently left without ſpires; high roofs became flat; the walls looked eaten up with windows; arcading ſank into ſhallow pannels with ſquare tops and mullions like a perpendicular window, and diaper work diſappeared altogether; unleſs a kind of ſquare pannel with an ugly and unnatural and bloated-looking flower in it is to be regarded as its ſubſtitute; doorways loſt their ſhafts and capitals; and as for the windows, the fate that befel them even under the dominion of the ſtyle next after the Geometrical, muſt be conſidered rather more in detail.

It is at this point that the admirers of the Late Gothic ſtyles have divided or diſtinguiſhed them from the Early ones by the terms Continuous and Diſcontinuous. I have no objection to the names if they like them, though I quite underſtand that they have been invented for the purpoſe, with a dexterous perception of the fact that continuity is generally regarded by the world as ſomething ſuperior to diſcontinuity. We muſt not complain that thoſe who are certainly not rich in arguments ſhould avail themſelves of the plauſible advantage of a name, as the followers of certain opinions in other matters of more conſequence are allowed to affix upon themſelves titles which imply that they enjoy a monopoly of all religions and political virtue.

What then is the principle of the diſtinction between the two firſt ſtyles of pointed architecture which are thus called the Diſcontinuous, and the two laſt called the Continuous? The difference was at firſt very ſlight, almoſt inſenſible; but yet it did involve a total change of principle. Mr. Ruſkin ſays it is ‘ expreſſible in theſe few words, viz. in

'the ſubſtitution of the *line* for the *maſs* as the element of 'decoration;' and applying it to windows in particular, he ſays that during the aſcending period of architecture the attention was kept fixed on the form of the penetrations or lights as ſeen from within, and not of the intermediate ſtone; and that the perfection of architecture was reached, 'when the light had expanded to its fulleſt, and yet had not 'loſt its radiant unity, principality, and viſible firſt cauſing 'of the whole:' that 'the great pauſe was when the ſpace 'and the dividing ſtonework were equally conſidered;' and that as ſoon as the ſtone came to be treated as elaſtic inſtead of ſtiff, and the forms of the tracery bars and mullions to be regarded more than the lights, then the fall of Gothic architecture had begun. (*Lamp of Truth*, xxii—xxiv.)

Here and elſewhere in the ſame chapter of the Seven Lamps, you find that other theory of window conſtruction, which I ſaid in the laſt lecture that I ſhould have to notice, as oppoſed to the principle of combination of diſtinct windows and tracery figures into large Geometrical windows, which I propounded as their true origin, therein agreeing with the admirers of the Continuous ſyſtem. If nothing more were involved than the abſtract queſtion how Decorated windows came to be invented, it would be very little worth purſuing; but as it involves the cauſe of the decline and fall of Gothic architecture, and as the object of modern inveſtigations is, or ought to be, to find out what is the proper ſtarting point for a revival, or where the decline began, it is important to conſider whether the 'pene-'tration' or the 'combination' theory affords the true ſolution of this queſtion. Mr. Ruſkin thinks it is impoſſible to look at the progreſs of window conſtruction from the Early

Engliſh to the Flowing period without ſeeing that the gradual expanſion of the *lights*, accompanied with great indifference to the form or decoration of the *darks*, i. e. the ſeparating ſtonework, was the leading idea of the early architects, until the lights had expanded to the utmoſt; and that then and not before, attention began to be directed to the form of the mullions and tracery rather than of the lights, and architecture to decline.

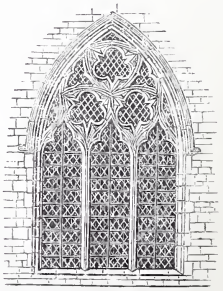
At firſt ſight this ſeems plauſible enough. But when you look rather more cloſely at the actual progreſs of window conſtruction, I think you will be ſatisfied that this is only one more of the many beautiful theories in the world which would be perfectly ſucceſsful if the facts could be altered a little in order to ſuit the theory which is to account for them. For I cannot find as a matter of fact, that there ever was a time when the attention of the architects was clearly fixed on the form of the lights, while the form, or even the decoration, of the ſtone which ſeparates them (about which Mr. Ruſkin ſays the early architect 'did not 'care') ſhowed any ſigns of not being cared for quite as much. Indeed before there was any ſuch thing as many-lighted windows, the jambs of the Early Engliſh lancets were decorated with ſhafts, and their heads with arch-mouldings, quite as carefully deſigned, and far more beautiful than many, we may ſay than moſt, of the windows of the later period when the architects had begun to neglect the lights and care only for the mullions. And when Geometrical windows began to be formed as I have deſcribed, by putting ſeparate windows together, the decorated ſhafts with their proper capitals remained, and the architect took care to diſtinguiſh the principal diviſions from the in-

ferior ones, by not fuſing their mullions together ſo as to make them all of the ſame thickneſs (as was commonly done in the Perpendicular ſtyle, and ſometimes even in the Flowing), but adding them together ſo as to ſhow that they were a compilation of ſeveral diſtinct mullions. You will ſee this plainly enough in either of the two windows at pages 69 and 71. And the ſame principle is ſtill more clearly developed in the tracery. If the penetration theory had been the true one, then the earlier the window is in the Decorated ſtyles, the more we ſhould have found the *lights* in the tracery of a definite and geometrical form, and the leſs we ſhould have ſeen irregular bits and corners of the ſtone-work projecting into the lights, and making them of unſymmetrical and undeſcribable forms. But in fact we ſee juſt the contrary. Juſt draw for yourſelves a ſimple two-light window on the ſubarcuation principle with a circle in its head; and you will find that the tops of the two ſub-arches cannot be perſuaded to fit cloſe againſt the circle, but obſtinately ſtick out into the corner-lights above them. It is true that when the tracery is pretty thick, as in that ſame window at page 69, theſe projecting corners get merged in what may be called the fringe of the wheel, ſo as not to be conſpicuous in the lights: but they are there nevertheleſs, as you will ſee if you look merely at the principal or middle rib of the tracery in that window, or any other of that which is undoubtedly the early ſtyle of Geometrical window conſtruction. But when you get into the later ſtyle, and even before Geometrical figures had entirely diſappeared from the tracery, as in the Weſt window of Exeter, you find theſe arch-tops bent aſide and ſqueezed up againſt the wheel, and the great middle rib of the tracery moulding run

into that of the wheel. So that in the earlier conſtruction, the diſtinctneſs of the ſtonework pattern was in fact more regarded, and in the later the ſhape of the light: which is exactly the contrary of what the penetration theory requires.

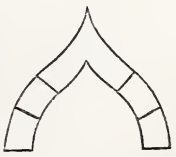
Again, if that theory were true we ought to find the lights in the earlieſt windows of clearly defined forms, with nothing more than 'a rude moulding' carved round them, ſhowing no particular regard to the ſhape of the intervening ſtone. But in fact, long before any other tracery was thought of, there were wheel windows divided into lights, not by ſtonework with a rude moulding, but by regular ſhafts with capitals and baſes, forming the ſpokes of the wheel, and joined together at the rim by arches, juſt like the mullions and tracery of a Geometrical window, and producing lights of very accidental and irregular ſhapes, ſuch as would never have been invented for lights.

If we did not know from another paſſage in the Seven Lamps that the Geometrical ſtyle is the one which Mr. Ruſkin thinks the moſt perfect, I do not think the paſſage I have quoted from him would indicate it. For it cannot be ſaid that 'the light 'had expanded to its fulleſt,' until the round receſſes of quatrefoils and the thick ſtonework at the junctions of the different figures in the tracery had been ſlit open into hollow cuſps with an *ogee* outline, and until the mullions and tracery bars had reached their utmoſt attenuation. And then the ſtyle had



Northfleet Church, Kent.

ceaſed to be Geometrical, and had become Flowing. Whether Mr. Ruſkin means that by that time the light 'had loſt 'its radiant unity, principality, and viſible firſt cauſing of the 'whole,' is more than I can tell; partly becauſe I am not ſure that I underſtand that radiant diſplay of words, and partly becauſe I do not believe that the gradual expanſion of the tracery light was the principle on which the conſtruction of windows was ever founded, until this very epoch of tranſition; when the lights were enlarged and the ſtyle changed at once, by cutting away every bit of ſtonework that indicated the diſtinctneſs of the figures of which the window was compoſed, and reducing the mullions almoſt to the miſerable thinneſs of modern architecture; and then, by an eaſy and natural advance in error, treating them as if they were made of flexible inſtead of rigid materials, and forgetting that the principle of arcuation is the only one on which ſtonework ought to be made to ſtand, as ſoon as it has got too thin to be treated as piercing through a ſolid block. Hogarth's line of beauty, which is in fact the *ogee* curve, or in mathematical language, a curve of contrary flexure, is a very good one to have deduced from natural objects which preſent it almoſt univerſally, and very fit for materials like metals, which admit of bending; but I believe it is entirely wrong for ſtone. Mr. Ruſkin, finding ogee arches in Southern pointed architecture, defends them in the Stones of Venice by aſſuming a ſingle large keyſtone of this form. To which one objection is that ſuch a keyſtone would have to be cut out of a piece larger than the Northern builders generally uſed or could often get for arch-building, except on a



very ſmall ſcale. Another is, that it is a very waſteful form: it is curious that you very ſeldom find a keyſtone at all in old pointed arches except where it carries ſculpture: they are almoſt always divided at the top. And thirdly, it is a weak form both of arch and keyſtone; and accordingly I believe it is never to be found in any work earlier than that Flowing ſtyle in which everything aſſumed a tendency to weakneſs, and to ſuch an extent that the ſtiffneſs of the Perpendicular ſtyle ſeems generally admitted to have been a kind of reaction from it.

From this mode of ſlitting open the junctions of the ſeveral patterns in the window tracery, it ſoon followed that the idea of compoſing windows by putting together ſeveral diſtinct patterns gave way to the idea of compoſing tracery by ſubdiviſion, and by extending the mullions upwards with all kinds of bends and interſections, and at laſt filling up the ſpaces or lights thus left with mere foliation; ſo that they ceaſed to have any definite form or pattern of their own, the whole of the deſigner's attention having then been confined to the bending of tracery bars into fanciful ſhapes, as unlike geometrical figures as he could make them. Thus in the Eaſt window of Carliſle, with nine lights, which is generally cited as the fineſt of the kind in England, you cannot give any name to a ſingle pattern in the whole window except a number of ſmall quatrefoils formed in the way I have deſcribed. Indeed in the tracery itſelf you can ſee no definite pattern that the deſigner has had in his head, except perhaps that of large ſpoons, of which you can make out ſeveral very fine ones. Even in the Weſt window of York, which I think much better, the lights have no definite patterns: though in the tracery you can diſtin-

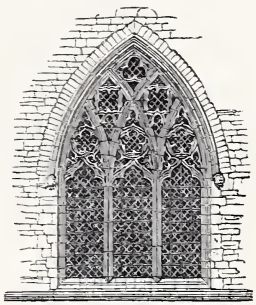
guiſh ſomething better than ſpoons, viz. branches ſpringing out of the great centre mullion; which however goes up ſo high as to give the window an unpleaſant appearance of being cut in two by a vertical bar. The Eaſt window of Trinity Church, Hull, which has been ſelected as the ſpecimen of a large Flowing window for the laſt edition of Rickman, and a very flattering likeneſs given of it, is, in my opinion, too mean and ugly, in conſequence both of the want of foliation and the thinneſs of the ſtonework, to be worth mentioning, except to warn you againſt receiving it as a fair ſpecimen even of an inferior ſtyle. Compare theſe, or the great wheel in the Flowing ſtyle in the ſouth tranſept of Lincoln, with the Eaſt window of the ſame Cathedral or the Geometrical wheel of York; or (in order to make the compariſon fair between old and modern execution) compare any pictures of theſe or other Flowing windows with thoſe of the windows of Doncaſter given in this book, and you will ſee at once, unleſs your ideas of beauty are very different from mine, how much grander are the diſtinct and ſtriking forms of the Geometrical tracery, with the bold maſſes of ſtone left here and there at their points of junction, than the indiſtinct and undecided lines which ſeem to have been drawn almoſt at random over the ſurface of the Flowing windows till they were cut up into bits ſufficiently ſmall for ſeparate lights.

This then was the new principle which began to make its appearance in architecture rather early in the fourteenth century. And as the Flowing ſtyle in which it firſt appeared added no new features of ornament, but only varied thoſe which exiſted before, Dr. Whewell and others have given the name of the Complete Gothic to

that Geometrical ſtyle. It is remarkable too that it was the ſtyle to which the varieties of French and German Gothic converged about the ſame time that it flouriſhed here, and from which they afterwards diverged into ſtyles again varying from each other and from our later ones. The Geometrical was therefore, while it laſted, not only the Complete but the Univerſal phaſe of Northern Gothic: a fact which I think, as Mr. Scott does (in his Reſtoration of Churches), raiſes a conſiderable preſumption that it is alſo the beſt, even if there were no other reaſons for coming to the ſame concluſion. You will underſtand now why the Flowing ſtyle has been ſaid to have introduced the principle of continuity, while the early ſtyles were diſcontinuous. A building, or even a window or other conſiderable part of the building, in the early ſtyles was formed on the principle of compilation or putting together of a number of parts all complete in themſelves (as any diviſion of a Geometrical window is); whereas the later buildings are treated rather on the principle of ſubdiviſion into parts which undoubtedly would be often quite incomplete in themſelves, and are admitted even by the continuous advocates to be 'far leſs graceful' than the details of the earlier ſtyles.

It has been remarked, I forget by whom, but I think very rightly, that it is impoſſible to make a fine window with the leading tracery lines conſiſting of the mullions prolonged upwards and croſſed. The Weſt window of Doncaſter, of which you can eaſily diſtinguiſh the pattern in the view of the Weſt front, given in the fifth of theſe lectures, is perhaps the neareſt approach which can be made to this ſyſtem of conſtruction without ſpoiling the effect of

the tracery. This window of ſeven lights may be conſidered to be compoſed of two four-light windows, overlapping or interſecting each other by one-fourth, inſtead of being placed ſide by ſide ſo as to form an eight-light window, as in the earlieſt ſyſtem of conſtruction. The old Perpendicular Weſt window was in this reſpect the ſame, though different in its number of lights, and of courſe ſtill more ſo in its filling up. But if you compoſe a window by making two ſmaller ones overlap each other by one-half, or even two-fifths, the effect is always inferior to thoſe where larger ſpaces are left clear in the tracery for circles or any other mode of filling up. You may ſee the effect in this ſketch of a window of only three lights. I do not ſay that no ſuch windows ought ever to be admitted by way of variety; but I mention this, which has been noticed by other people (though the reaſon of it has not), as an illuſtration of the injury which is immediately inflicted by the introduction of the principle of conſtruction by ſubdiviſion inſtead of compilation even in a ſmall degree. For theſe interſection windows clearly contain the firſt elements of the patterns formed by making the mullions branch out into Flowing tracery.



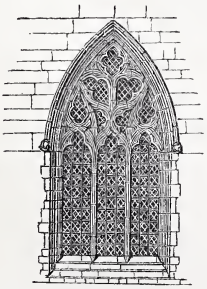
Herne Church, Kent.

But beſides the general patterns of the windows, there are other points of contraſt between the Geometrical and the Flowing ſtyles. It was in the Flowing period that the practice, not only of making thin mullions, but alſo of ſet-

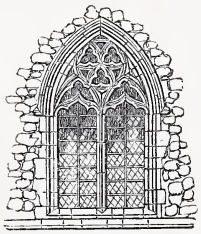
ting them ſhallow in the wall from the outſide came in. I have mentioned the contraſt between the Geometrical windows of the aiſles of Selby, and the Flowing ones of the clearſtory. If you want to ſee ſome windows ſtill more ſpoiled by not being ſet deep enough, look at thoſe in the north aiſle of Bolton Abbey, and compare them with the one perfect one and the fragments of a few others which remain in the Choir. Theſe have only Flowing tracery too, but they are deep ſet; and therefore the compariſon is fairer for the purpoſe of judging of the effect of deep ſetting without regard to anything elſe. At Beverley you may make the compariſon in yet another way. In the Minſter there are a good many Flowing windows, and a few Perpendicular ones at the Eaſt end, and the clearſtory windows of St. Mary's Church are alſo Perpendicular. Generally ſpeaking you expect (unleſs you happen to belong to that very ſelect body of admirers of what Mr. Ruſkin calls 'our own deteſtable Perpendicular') that Decorated windows will look better than Perpendicular; and yet in this inſtance they look far worſe. I had ſeen them very often, and had been ſtruck with this, long before I ever thought of looking for the reaſon, which is plain enough when you do look for it; for the Perpendicular windows are deeper ſet, and have higher arches than the others: I do not know that there is much difference in the thickneſs of the mullions and tracery, but what there is appears to be in favour of the Perpendicular. There is another window at Selby which I muſt mention, becauſe of a peculiar and eſſential Flowing feature in its tracery; I can deſcribe it no otherwiſe than as a *lopſided ogee*, formed twice by the way in which the principal mullions are carried up into the

tracery. It muſt be ſeen to be appreciated. At firſt ſight the window may appear a good one; but the moment your eye has caught ſight of theſe unhappy lines you cannot get rid of them, and their effect is frightful. It has been made out by Mr. Sharpe that the tracery of the great window of the ſtill grander Eaſt front of Howden had the ſame fault. The ſide windows too of that Choir appear to have had the uſual faults of windows in that ſtyle, and contraſt miſerably with the 'rigid' and 'ſavage' maſſiveneſs of the Geometrical work of Guiſborough and Tintern, or with 'the lovely ruins of St. Mary's Abbey;' of which the greateſt part was burnt to make mortar in the days when Gothic Architecture was thought too barbarous for the refined taſte of modern times.

Nevertheleſs I am far from ſaying that all Flowing windows are to be condemned. Here is a ſmall one of three



Holbeach Church, Lincolnſhire.



Northfleet Church, Kent.

lights, of which I happen to have a print, with a high arch, thick tracery, and apparently ſet a good depth in the wall, and altogether a very pretty window (even though it has thoſe inverted arches at the top of the two ſide lights which Mr.

Ruſkin ſo fiercely denounces in Perpendicular windows); and by way of contraſt I put by the ſide of it another of probably earlier date, with a lower arch, ſhallower ſetting, and thoſe broken-backed cuſps, which I abuſed before, ſtuck into the lights, and looking as if they wanted knocking out, which a very moderate blow would do. But I am ſtrongly of opinion that the general character of Flowing windows, and of the other ornamental work, ſo far as it is peculiar to that ſtyle, is very inferior to the Geometrical in ſtrength and boldneſs, and in thoſe qualities which may be ſaid to conſtitute real Gothicneſs. For inſtance I do not know that ogee tracery curves and canopies are irremediably ugly things in themſelves; but I think that they are beyond all queſtion much leſs Gothic than the ſtraight-ſided canopies (which are in fact very ſharp pitched roofs or gables) of the Geometrical ſtyle, and that it is a miſtake to ſuggeſt the idea of flexibility in ſuch a material as ſtone, which is known to have ſo little ſtrength except againſt compreſſion. Nor do I mean to object to the occaſional uſe of ſome of the early features of the Flowing ſtyle, before it had loſt all traces of Geometrical character and ſtrength; but in anſwer to the queſtion I propoſed, as to the exact point which is to be taken as the climax of the Gothic ſtyles, I have no heſitation whatever in fixing it at the period of the Geometrical, or Complete, or Univerſal ſtyle, of which the year 1300 may be taken as the middle. Up to that time I think architecture was aſcending, and from that time it beganto deſcend.

The general characteriſtics of the Perpendicular ſtyle are probably better known than any of the others, both becauſe

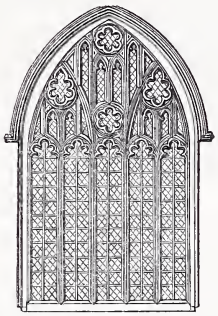
they are ſo ſtriking, and becauſe there is ſo much more of Perpendicular work remaining, and eſpecially of Perpendicular windows (which were often inſerted in older walls), than of any or all of the other ſtyles together. This naturally follows both from its being the lateſt, and alſo the longeſt in duration of them all; ſince it came in very nearly a century after the Geometrical, viz. at the end of the three firſt Edwards, or 1377, and laſted until it merged in that compound ſtyle called the Elizabethan, which is better known in connexion with houſes than churches; as there was not likely to be any church-building for many years after the deſtruction of the monaſteries, except the few which were preſerved, and often very imperfectly, for pariſh churches. Then came the days of Puritaniſm, civil war, Preſbyterian and Popiſh tyranny, infidelity, and indifference, under which *Gothic* architecture at any rate was not likely to flouriſh, even if its ſpirit had not died out before. It remains to be ſeen whether we can awaken and revive it now, in theſe times, which are certainly not quite ſo depraved, and therefore not ſo unfavourable to the developement of the moral characteriſtics without which there can be no real Gothic building, as thoſe two centuries during which it lay dead and apparently extinct; though ſtill bad enough.

It is remarkable that although you find little of any other ſtyle except the Perpendicular in the pariſh churches of the South of England, it never croſſed over the water. On the continent the Geometrical ſtyle laſted longer than it did here, and then ſank at once into the form called Flamboyant, from a kind of reſemblance of its window tracery to flames. It is not very unlike the lateſt and worſt ſtage of our Flowing, though coeval with the Perpendicular; and as

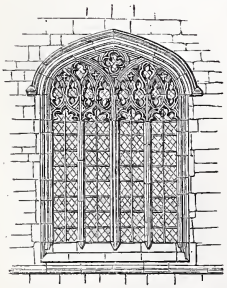
Rickman ſays, it became ultimately 'jumbled with a ſtrange 'mixture of Italianiſm.' It is almoſt univerſally conſidered inferior to the Perpendicular, as well by thoſe who think that the worſt, as by the few who think it the beſt of the Engliſh ſtyles. This confinement of the Perpendicular to this country has been turned, by a ſtrange kind of logic, into an argument for its being the beſt and fitteſt to adopt as the model Gothic ſtyle now. Mr. Scott, on the other hand, as you remember, advocates the Geometrical on this among other grounds, that it was *not* an excluſively Engliſh ſtyle, but was the Univerſal one, and the only univerſal one: to which the national varieties of all the previous ſtyles converged, and from which they again diverged into the Flowing, the Flamboyant, the Perpendicular, and that curiouſly ugly and unmechanical form called the Stump tracery of Germany. It is not difficult to determine whether univerſality or ſingularity is the beſt reaſon for the adoption of a ſtyle; and whether that argument is the ſoundeſt, which is equally valid in England, France, and Germany, and ſupports the ſame concluſion everywhere; or that which if uſed in France muſt prove that Flamboyant tracery is the moſt beautiful, and in Germany that the Stump tracery is the thing to copy, juſt as much as it proves that the Perpendicular ſtyle muſt ſuit Engliſh ideas of beauty the beſt, becauſe it was the moſt peculiarly Engliſh. But the advocates of Perpendicular work have called in the aid of another argument equally independent of any actual compariſon of the ſtyles, and equally logical. They ſay that becauſe this was the lateſt form of Gothic developement, it muſt be preſumed to have been the ripeſt and the beſt: forgetting that the very ſame words in the mouth

of a French Petit or Freeman would prove with exactly the ſame force that the Flamboyant is the perfection of Gothic, becauſe it was there the lateſt form of its developement. That argument is moreover equally illogical on other grounds, inaſmuch as there is no law of nature, or art, or politics, or morals, that I know of, that things ſuddenly periſh when they have come to their beſt, and do not decay gradually.

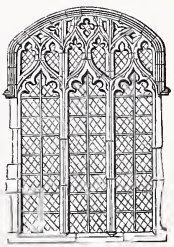
I do not know that anybody has ever yet avowed himſelf to be an admirer of Perpendicular window tracery (of which here are three average ſpecimens of different kinds) in pre-



Weſt Tarring Church, Suſſex.



Baſingſtoke Church, Hampſhire.



Riſtangles Church, Suffolk.

ference either to the Geometrical, or the Flowing Deco-

rated ; or even that any of the profeſſed admirers of the Perpendicular ſtyle have gone as far in its favour as I have myſelf in ſaying that the early Perpendicular windows are ſuperior to the Late Flowing ones, in depth of ſetting, in thickneſs of the mullions, and in the height of their arches. But nothing can be more meagre and monotonous than the tracery of large Perpendicular windows. Mr. Ruſkin has given a deſcription of the mode of conſtructing one, not much exaggerated, in the ſecond volume of the Stones of Venice, and ſhown how it offends againſt nearly every rule of good conſtruction. In many of ſuch windows, eſpecially the later ones, the conſtruction conſiſts of nothing more than running up a ſet of vertical window bars into the arch at the top, of itſelf a moſt unmechanical arrangement, and croſſing them with a number of horizontal bars or tranſoms, and foliating the corners, and throwing in a few internal arches here and there if the window is large enough. In fact a Perpendicular window, to be conſiſtent, ought to have a flat top, becauſe vertical bars are only calculated to ſupport a vertical preſſure, and they are quite near enough together to be able to carry the top of a window compoſed of a number of ſtones. And accordingly the arches did get flatter and flatter, and after paſſing through the ſtage of the low four-centred Tudor arch, as in two of the three juſt now exhibited, and in both the great windows of King's Chapel and a multitude of other churches of that date, they did ſubſide into the ſquare-topped window with a number of ſmall rectangular lights, with which everybody is familiar in the Elizabethan houſes, and which is only one ſtage removed from the ſucceeding claſſical ſtyle, where they diſcarded the pointed arch alto-

gether, and only uſed a round one when they could not do without it. Indeed I am inclined to think that, but for the inconvenience of diſturbing a ſettled nomenclature, Rectangular would be a better name for the laſt Gothic ſtyle than Perpendicular; as the rectangularity or ſquare-corneriſm of all the ornamental diviſions, even to the encloſing of pointed arches within a ſquare moulding or pannelling, ſoon became its moſt ſtriking and moſt diſagreeable characteriſtic, and in common talk perpendicular is underſtood to mean upright, though it does not in mathematics.

Another noticeable feature of Perpendicular windows is the great number and the ſmall ſize of the lights of which they are compoſed; or rather, into which they are divided; compoſition being the principle of the early ſtyles, and ſubdiviſion of the late, as one of the advocates of the latter rightly puts it. The Eaſt window of Glouceſter has fourteen lights: I mean fourteen vertical diviſions, becauſe it has ſeveral tranſoms beſides, as all the large Perpendicular windows had; and the Weſt window of old Doncaſter Church, and ſeveral others of the ſame pattern in Yorkſhire, had nine lights, though it was ſmaller than the Geometrical one we are now building of ſeven, and of courſe a vaſt deal ſmaller than the Flowing Weſt window of York with its eight lights. At King's Chapel and many other Perpendicular churches the windows occupy the whole ſpace between the buttreſſes; and the common form of Perpendicular clearſtory, of which this of Doncaſter was a ſpecimen, was more like a large greenhouſe than anything elſe, conſiſting of nothing but windows and juſt as much wall as would ſtand between them.

Here again you ſee the 'Continuous' principle ſtill more fully developed than even in the Flowing ſtyle. In that ſtyle it had uſurped the place of the compilation or combination principle in the window tracery. Now it extended itſelf over the walls, even up the ſides of towers; for inſtead of being divided into diſtinct ſtories of nave-arches, triforium, and clearſtory, marked off by horizontal ſtring courſes ſo as to appear as if they were ſuperimpoſed—as they are, and with the roof ſhafts ſpringing only from corbels in one of the higher ſtories, they now came to be divided by vertical lines running from top to bottom, and the triforium (when it was allowed to exiſt at all) got amalgamated with the lower ſtage of the windows, and the roof ſhafts run down to the bottom right through the capitals of the pillars, which were ſometimes left out altogether. Indeed it is remarkable that the very ſame writer who calls upon us to admire the Late ſtyles becauſe they have more of continuity than the Early, admits that the details or ſeparate parts in the Diſcontinuous ſtyles are far more graceful than in the Continuous. Where then is the virtue of continuity? Does it conſiſt in the ſubdiviſion of the ſurface of walls, or the tracery of windows by a number of ſtraight lines running acroſs each other from top to bottom and from end to end, like the ruling of an account-book, as Mr. Ruſkin ſays, and filling up the corners with little bits of foliation, which might be made Continuous from here to Edinburgh with no more invention than the fabrication of a ſingle diviſion? Everybody has heard the abſurd ſtory of the man who carried about a brick as a ſpecimen of the houſe he had to ſell. But if you could cut out a ſingle diviſion of a Perpendicular building and exhibit it, and juſt mention how many times

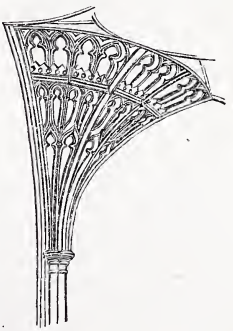
it is multiplied, ornaments and all, you might give a pretty accurate idea of the building. Perhaps you may be inclined to reply, 'So you might take a ſlice of Beverley Minſter, 'and ſay there are ten bays in the nave, all like this.' But you would be very much miſtaken if you did; for every capital of the many hundred arches of the arcade that runs all round that church, not to ſpeak of other ornaments, is different from every other: whereas in King's Chapel you have the ſame gigantic roſe and crown and the ſame Lilliputian portcullis ſtuck in the ſame pannel by the ſide of the ſame window-jamb, which runs from the floor to the roof, repeated over and over again as if there were no other objects in the world, natural or artificial, capable of being repreſented in ſtone. Here again was a ſtill nearer approach to the ſtill more monotonous ornamentation and unbroken continuity of the revived claſſical ſtyle which ſoon after ſwallowed up the decayed remains of the degraded Gothic of the Tudor times; and in which an infinite number of capitals of Corinthian pillars may juſt as well be made of caſt iron (as they ſometimes are) and kept in ſtock, of a few different ſizes, like ſaucepans, as they are juſt as like each other as ſaucepans, and are like nothing natural on the face of the earth.

But again you may aſk how we can complain of the monotonouſneſs and repetition of the Perpendicular ornaments, when the toothed ornament of the Early Engliſh and the ball flower of the Geometrical ſtyle are repeated *ad infinitum*. The anſwer is eaſy enough. Thoſe ornaments are ſo ſmall that they could produce no effect at all except by multiplication in great quantities, and they are alſo too ſmall to admit of any variety, except in ſize. There are three

or four bands of toothed or four-leaved ornaments, all of different ſize, ſet in the different mouldings of a ſingle doorway at Bolton Abbey, which is fortunately left viſible, in conſequence of the deſtruction of the laſt Prior before he had time to deſtroy it to make way for any more of the Perpendicular work which he had begun. But in the lateſt ſtyle, not merely ſingle ſmall ornaments are repeated, but the whole thing is made up of, or according to the continuity doctrine, ſubdivided into a great number of parts all exactly alike; ſo that when you have taken a general view of the whole, and examined the detail of a ſingle ſlice, you know as much about it as if you looked at every part ſeparately. Mr. Freeman and Mr. Petit may conſider this the perfection of architecture, and for anything I know, it may be of Grecian or Italian architecture; but when they call upon us to conſider continuity the great principle of Gothic architecture, and to judge of the merits of the different ſtyles by applying that teſt to them, they ſeem to have forgotten that it is their buſineſs firſt to prove it, and not to aſſume the acquieſcence of the reſt of mankind in what I have as much right to call it a piece of pure nonſenſe, as they have to call it a great principle of architecture, or to adopt as an axiom. It is eaſy enough to prove anything if you are only allowed to aſſume your own principles, and then argue back again from them. I have told you, as other perſons have done before, the points in which I think the Early ſtyles are ſuperior to the Late. You may agree with us or not; but if the advocates of the Late ſtyles want to prove their ſuperiority, they muſt do it not on ſuch abſtract grounds as the maturity, nationality, continuity, or verticality, of the Perpendicular ſtyle, but by ſhowing us in

detail what are the particular viſible characteriſtics of it which they are prepared to maintain againſt the viſible characteriſtics of the Early ſtyles, eſpecially the Geometrical, which contains everything that is to be found in the later ones, and in a far grander and richer and bolder form, with the ſingle exception of the fan tracery roofs.

Mr. Ruſkin indeed will not allow even them to have any merit except that of a mechanical triumph over great apparent difficulties, and ſeems to think that the great vault of King's Chapel, ſuſpended in a breadth of fifty feet at a height of about eighty over walls with no ſupport viſible inſide, is only calculated to make one wonder 'how gat it 'there.' I doubt however whether he has convinced one of the many readers of his books, that all the world has been wrong hitherto in admiring this wonderful and almoſt expiring effort of Gothic art. Here is a piece of ſimilar roofing from St. Stephen's Chapel at Weſtminſter. It would have been a good deal more to the purpoſe if he had pointed out the diſtinction between the truly ſcientific and elegant conſtruction of that roof, and the depraved imitations of it in ſuch works as Henry VII.'s chapel and the Oxford Schools, with their monſtrous and dropſical pendants, which look as if they were every moment going to fall and cruſh ſomebody beneath them, as they would if the ſtone of which they are made happened to have a crack in it: which is the reaſon why ſtone ought never to be treated



St. Stephen's Chapel, Weſtminſter.

as capable of reſiſting any force of tenſion, and as little as poſſible even of bending force.

But although the fan tracery of the Perpendicular roofs is inferior in no way that I ſee to the plainer ribbed vaulting of the earlier roofs, the caſe is very different with the nearly flat external roofing which is common in that ſtyle and very uncommon (except in aiſles and other mere appendages to the main building,) in the earlier ſtyles. This objection to the low gables, of nearly the Grecian pitch, of the Perpendicular ſtyle, its advocates have two ways of anſwering: one is, that low roofs are better than high ones; and the other is, that high roofs are ſometimes found in the Perpendicular ſtyle, and low ones occaſionally in the other ſtyles. To take the ſecond firſt; I ſhould imagine that the merits of a ſtyle of architecture, or of anything elſe, are to be determined by what belongs to it more than to any other, and in fact is one of its characteriſtics, and not by what it occaſionally uſes in common with the others. It is true, as Mr. Freeman ſays, that the roof of Wincheſter is about as high-pitched as that of Lincoln; but it is not the leſs true that for one Perpendicular church with a high roof there are fifty with low ones, whereas in the early ſtyles I ſuppoſe the proportion would be nearly reverſed. Indeed the Perpendicular builders were ſo fond of their low roofs that they conſtantly ſubſtituted them for the high ones of their predeceſſors in the ſame way as they did here at Doncaſter; where they ſank the roof ridge twelve feet below the height of the old Early Engliſh roof, of which the weather-moulding was viſible all round the tower, and raiſed the clearſtory and ſubſtituted nine broad and ugly windows for the Early Engliſh triforium and lancet windows, of which the traces were found in the ruins after the fire.

The low gable of the Perpendicular ſtyle, like the low arches which accompanied it, is another ſymptom of approximation to the claſſical ſtyle; and theſe things make it leſs ſurpriſing that Mr. Petit who began by aſſuring the world that this rectangular ſtyle is the moſt mature and perfect Gothic ſhould now have gone over to Rome altogether, to the extent of openly recommending an imaginary compound of the Gothic and the Roman ſtyles. Whether Mr. Freeman, who pronounces him 'the firſt of architectural critics' intends to follow, we are not yet informed.

But I am glad to ſee that he at laſt, with the ſame candour which admitted the far greater gracefulneſs of the details of the Early ſtyles than of the Late, after proving that (on his principles) a high roof has no buſineſs to look well, exclaims—'and yet it is felt to be a beauty.' I ſhould think it is; and a beauty which he will in vain attempt to match with the 'outline broken up with ſoaring pinnacles as at 'King's Chapel,' or any other of the clandeſtine roofs of the laſt days of Gothic architecture, which ſeemed to be beginning to be aſhamed of having ſuch a vulgar thing as a roof at all, and ſtrove to hide it by battlements and pinnacles, inſtead of making the roof and its high-crowned gable one of the great architectural features of the building. It was however reſerved for the modern Gothic builders to ſink one ſtep lower, and to build low roofs to ſave a little money, and try to make them paſs for high ones by building a ſham gable in front of them. If hypocriſy is rightly called the homage that vice pays to virtue, this is an acknowledgment that they know Mr. Ruſkin to be right in pronouncing the high roof to be one of the diſtinguiſhing features of true Gothic.

Juſt now indeed there ſeems to be a kind of oſcillation in the oppoſite direction, and ſome people appear to think that you can neither have church roofs too high, nor have too many of them; and ſo we ſee little churches which look all roof outſide, and inſide are too dark to ſee up into the roof, from the lowneſs of the walls and windows; and others where the architect ſeems to have aimed at making as many ditches as poſſible for ſnow to lie in between his roofs and walls. Whereas in old buildings the general practice, and certainly the rational and proper one, was to put the higheſt roofs on the higheſt walls. Thus the roofs of Cologne, with its walls about as high as our tower, are of conſiderably more than equilateral pitch. Our beſt cathedral roofs appear to be of about equilateral pitch; while pariſh church roofs are generally ſomewhat lower, or in about the ratio of ſix for the ſlant ſide to ſeven for the ſpan. It occurred to me that the builders might have had the idea of making theſe roofs of the angle formed by the radii of a pentagon, as the cathedral pitch is that of a hexagon; and on meaſuring the angle of the weather-moulding made for the old Early Engliſh roofs on the tower here, Mr. Scott and I found it to be exactly ſo; and it is curious that the empirical rule of ſix to ſeven gives very nearly the ſame angle. I am ſorry to ſee that the Gordon Square church not only has its roofs covered with blue ſlates, the ugliеſt and moſt un-Gothic of all materials, but with a pitch too low for the height of the walls, which are nearly as high as thoſe of Beverley Minſter. The eaſtern-moſt of the two tranſepts of that Minſter is narrower than the choir which it croſſes; but the builders of it knew better than to commit the modern abomination of making

croſs roofs of different heights, and therefore they made that roof of ſharper pitch than the reſt, and that gable is the moſt beautiful of them all. I am ſurpriſed to find too that Mr. Scott is going to perpetuate and extend over the other ſeven bays of Bridlington, with walls ſeventy-five feet high, a roof of the miſerable pitch of even lower than a right angle, which was begun on three of them a few years ago. If they can't afford to do it properly they had better leave it alone, or build a profeſſedly flat roof as if it were a Perpendicular building, as part of it is. The excuſe that low gables were ſometimes uſed in buildings expoſed to high winds is all nonſenſe. Nobody ſurely imagines that a well-built roof of equilateral pitch, on walls ſuch as thoſe, and pillars five and a half feet ſquare, is in danger from any wind that ever blows in England, even if the Eaſt winds (which are the ſtrong winds there) were not notoriouſly leſs violent than the Weſt, which ſweep over the plains of York and Sarum, or the hills of Durham and Lincoln, and the weſtern coaſt of Carliſle.

But I ſee no advantage in making aiſles with high gables, inſtead of lean-to roofs of moderate pitch. The roof gives no outline by the ſide of the nave walls, and only cuts off the clearſtory windows if there are any, as there generally ought to be in order to get light enough when there are aiſles. An aiſle is by its very etymology an appendage—a wing, not a paſſage, as people ſeem to imagine who talk of the 'middle aiſle' of a church; and therefore a lean-to roof is the moſt appropriate for it. But where the aiſles are made much wider than the old proportion of about half the width of the nave, they muſt, or at any rate they *may* be dealt with differently. But even there, if the nave has a

clearſtory, it ſeems better to give theſe wide aiſles a very low gabled roof like the two chancel aiſles or chapels at Doncaſter, or the aiſles of Newark and Grantham, which are nearly as wide as the nave, being probably of much later date. In churches like the Temple, or Mr. Scott's copy of it in St. Matthew's at Leeds (only without the Round), where all the roofs ſpring from the ſame level and of courſe without a clearſtory, nothing can be better than the three high gables; and the ſame is the caſe in churches of that form common in Shropſhire, where there is only one aiſle, of the ſame width and height as the nave, ſo that the middle of the church is occupied by the pillars, and the pulpit ſtands againſt the wall: by no means an inconvenient arrangement; and as it muſt be cheap alſo, I wonder it has not been more frequently copied. I ſuppoſe the reaſon is that it is too ſimple for the modern taſte of making as many ins and outs and ups and downs as poſſible, and building little churches for 300 or 400 people with as many ſeparate roofs as a cathedral. I know a church with a veſtry like the polygonal chapter-houſes of York and Lincoln, and juſt big enough to ſtand in—with your head up in the roof like a candle with the extinguiſher on, for you muſt ſtoop to get in.

There is yet one more argument by which it is attempted to make out that the Perpendicular is the moſt perfect of the Gothic ſtyles. We are told that theſe ſoaring pinnacles ſeen above the roof of King's are more conſiſtent with 'the 'vertical principle' of Gothic architecture than a roof which overtops the pinnacles but is bounded by a horizontal line, and that 'a high roof viewed laterally' (i. e. when you only ſee the gable edgeways) 'does not carry out the vertical

'principle.' The latter part of this may be ſhortly anſwered by the queſtion, how do you contrive to look at a roof without ſeeing the height of the gable above the ſide walls, whether you ſee it edgeways or flatways? Moreover if the roof is covered with lead, as the beſt roofs are, the only viſible lines are the vertical ones made by the rolls of the lead; and even then the top is not level, becauſe the rolls make it uneven; for it is a mere modern vulgariſm to put on a ridge roll, which is of no earthly uſe, and juſt deſtroys the ſerrated effect which the natural rolls produce, and which was and even now is ſometimes increaſed ſtill further by ridge ornaments of lead or iron, or of pot in the caſe of tiled or ſlated roofs. But whatever the roof is covered with, is it not ſomething very like nonſenſe on the face of it to talk of a low roof carrying out vertical principles more than a high one? You know perfectly well that the low roof is there even when you are too near to ſee it; and when you are far enough off to ſee it, you ſee the very ſame horizontal line as in a high roof, only lying a great deal lower; and if there are pinnacles to the buttreſſes, they ſhow juſt as well againſt the high roof as above the low one. But independently of all this, where do theſe Perpendicular gentlemen find that the 'carrying out of the 'vertical principle' is the paramount duty of Gothic architecture, any more than the 'continuous' principle, which they alſo inſiſt upon as one of the glories of the two lateſt ſtyles? It is right enough to ſay, as Rickman did, that one of the points of contraſt between Grecian and Gothic architecture is that the general running lines are horizontal in the former and vertical in the latter; or to ſay that the Grecian ſtyle is incapable of towers becauſe of its eſſential

horizontality. But that is a very different thing from ſaying, and ſtill more different from proving, that the more continuous and uninterrupted the vertical lines in a building are, the more Gothic it is to be conſidered. The principles or laws of Gothic architecture are to be made out from a critical examination of the original Gothic buildings, juſt as the laws of the Greek metres were made out by Bentley and Porſon from an examination of the old Greek poetry, and not from *à priori* theories of their own. Scholars do not look for the laws and rules which are to guide our ſtudy of the ancient languages in the lateſt writers, but in the beſt, who never were the lateſt; and it is about as ſenſible to teſt the merits of the compoſitions of Gothic architects of the thirteenth century by their conformity to principles extracted from the fifteenth, as it would be to try Virgil by Silius Italicus, Cicero by the Latin of the Fathers, or the ſtyle of our Engliſh Bible and Prayer-book by Cardinal Wiſeman's Paſtorals, Dr. Cumming's Lectures, or the Archbiſhop of Canterbury's Prayers for a Faſt-day.

It is perfectly true that continuity and verticality did prevail more in the late ſtyles than in the early ones. Mr. Freeman infers from that fact that the late ſtyles are the beſt, or rather aſks the reſt of the world to infer it. To my notions this is extremely like what is called reaſoning in a circle; and I take the liberty to infer, on the contrary, that as the earlier ſtyles are generally conſidered to be ſuperior to the late, as it is contrary to all analogy that the lateſt ſtyle in any art ſhould be the beſt, and as the advocates of the late themſelves admit the ſuperiority of the early in their details (i. e. in all except the compoſition, which involves the very

queſtion at iſſue), therefore the verticality and continuity, which are the peculiarities of the lateſt ſtyle, are in reality the beginnings of departure and decline from genuine Gothic principles. This may ſeem rather ſtartling after what I ſaid juſt now of Grecian horizontality. But where do you find anything in Gothic architecture ſo like the Grecian pillars running right up from the baſement to the roof, as the flat roof of a Perpendicular Church with its rafters reſting on ſhafts oſtentatiouſly carried up from the floor, cutting acroſs and ſtanding out from all the pillar-capitals (if indeed there are any) and ſtring courſes and every horizontal line they meet with? This element of continuous verticality then is one more evidence, beſides the others I have mentioned, of the approximation of the lateſt Gothic ſtyle to the principles of the claſſical which was ſoon to overwhelm it.

There is a note to Mr. Ruſkin's deſcription of the Perpendicular ſtyle which I do not think ought to be left unnoticed. By way of giving a lift to his beloved Southern Gothic he dexterouſly hangs the dead weight of 'our own 'deteſtable Perpendicular' at the other end of the ſcale, and ſays:—'Now all Gothic may be divided into two vaſt ſchools, 'one Early, the other Late . . . and chiefly confined to 'northern countries; *ſo that* the two ſchools may be oppoſed 'either as Early or Late Gothic, or (in the fourteenth cen-'tury) as Southern and Northern.' This, like not a few of his other ſolemn dicta, is reducible into two parts, one a truiſm and the other an abſurdity. Nobody can deny that Gothic architecture, like every other art which exiſted for a long time, may be divided into Early and Late; neither can it be diſputed that, like everything elſe which has exiſted

in the warm countries South of the Alps and the cold ones in the North, it had different characteriſtics in the two different climates. So much for the truiſm. But what can be more ridiculous than this attempt to cram the Southern Gothic down our throats, by firſt abuſing the worſt Northern ſtyles as 'ignoble, uninventive, and declin-'ing,' (which is true enough) and then telling us, as a diſcovery that had never been made before, that they are quite different from the Southern ſtyle of the ſame or any other period, and ſo expecting us to take for granted that the Southern Gothic was eſſentially 'noble, inventive, and 'progreſſive,' as the early Northern ſtyles were? It ſeems to be an axiom in Mr. Ruſkin's architectural Euclid that 'two things which are different from a third are equal to 'each other.' Let him give us as many pictures of his Doge's Palace and St. Mark's Campanile as he likes, (and perhaps nobody can do ſuch juſtice to architecture in that way as he can) and perſuade people to admire them by pointing out every beauty that he can find. But when he ſeeks to exalt theſe things above the great works of the Northern builders by ſuch ſmall devices as this which I have juſt now noticed, and by printing his Venetian tower ſide by ſide with a trumpery little modern Edinburgh impoſture calling itſelf a tower, and aſking which we think the beſt, then it is time to lift one's voice and expoſe this kind of criticiſm.

I began this inquiry into the leading characteriſtics of the five Gothic ſtyles with the object of aſcertaining which of them is the beſt to adopt now in caſes where we are at liberty to adopt whichever we pleaſe. I have come to a clear concluſion myſelf in favour of the third, and have now ſet before you the reaſons which ſeem to me to prove that

it is right; and you may ſee from Mr. Scott's book and Mr. Ruſkin's how far my reaſons agree with theirs for coming to the ſame concluſion. I believe the general opinion is in favour of the later Decorated ſtyle, that is the Flowing, rather than the earlier or Geometrical; and that is one reaſon why I have ſpent ſo much time in pointing out the diſtinctions between them, and the weakneſs, want of invention, and incipient decline of the later one, and inſiſted ſo much on the importance of obſerving the true principles of the Geometrical ſtyle when we profeſs to build in it. I have never ſeen that really done yet, nor do I flatter myſelf that I have done it as completely as it might be done. And therefore it is no wonder that people are not awake to its ſuperiority over all the other ſtyles: they have yet to learn that a window is not to be conſidered a ſpecimen of the Geometrical ſtyle merely becauſe it has ſome circles in its head; and that a few ſhallow niches, only deep enough for the moſt attenuated ſaints, and arcades which look as if they were pinned againſt the wall, and buttreſſes whoſe ſet-offs ſeem to have been forgotten when the lower ſtages were built, and a roof covered with blue ſlates, and made of timbers only half as thick as the old ones, are not redeemed from baſeneſs nor have any right to call themſelves Gothic, even though executed in the very fineſt ſtyle of modern workmanſhip—which indeed would be almoſt enough by itſelf to un-Gothicize York Minſter. But on that ſubject I ſhall have more to ſay hereafter. We have yet one other moſt important feature in church architecture to conſider, and one ſpecially intereſting to us at Doncaſter, and ſufficiently diſtinct to have a lecture to itſelf: I mean Towers and Spires.

LECTURE IV.

ON TOWERS AND SPIRES.

AS I ended the laſt lecture by condemning the Perpendicular ſtyle and its immediate predeceſſor in compariſon with the earlier ones, I will begin this by mentioning one feature in which the ſuperiority ſeems to have been generally conceded to the Perpendicular builders even by ſome perſons who prefer the earlier ſtyles in other reſpects: I mean the art of tower-building, and eſpecially the building of towers without ſpires. Certainly it is the fact that nearly all the moſt celebrated towers in England, and ſome alſo of the higheſt ſpires belong to that ſtyle. It is enough to put down the following names, in no particular order, but juſt as they occur to me: Boſton, Canterbury, Taunton, Durham, Glouceſter, York, Wells, Beverley, Howden, Hedon, Hull, Wrexham, Fountain's Abbey, St. Neots, Doncaſter, and Merton College; and later than them all, but hardly inferior to any in its general aſpect, the well known tower of Magdalen in the ſame Univerſity. And to theſe may be added the ſpires both of St. Michael's and Trinity Church at Coventry, and of Louth and Norwich, beſides the three of Lichfield Cathedral, of which the great one was rebuilt

by Biſhop Hacket late in the ſeventeenth century, after its deſtruction by Oliver Cromwell, celebrated in Mr. Greſley's 'Siege of Lichfield.' But we miſs from this liſt, and ſhould miſs if it were ever ſo much extended, not only ſome of the fineſt ſpires, but alſo a tower which is in my opinion far grander than them all—Lincoln. Worceſter too, would only partially appear in it, as that tower (almoſt the only valuable external feature in the cathedral) is mainly Geometrical, though Perpendicular in its termination. The towers of Ely, Hereford, and Perſhore, all famous in their way, are all much earlier, beſides ſome ſmaller ones, ſuch as Melton Mowbray and others, of which pictures (but not very good ones) are given in a book lately publiſhed with the ſame title as this lecture, but with an introduction of which the object is very different, viz. to glorify the Perpendicular ſtyle of tower-building, being written by Mr. Freeman whoſe name I have ſo often mentioned.

There are two obvious reaſons why there ſhould be ſo many more Perpendicular towers than Decorated or Early Engliſh. One is, that the Perpendicular ſtyle, having been both the lateſt and the longeſt in duration, has of courſe left more remains now ſurviving than any other. The other is, that in the three ſtyles between the Norman and the Perpendicular, it was not the faſhion to build towers without ſpires; and therefore, notwithſtanding their greater antiquity and chances of decay, there are probably more Norman towers ſtill remaining than of all the three other ſtyles before the Perpendicular. The great tower of Lincoln once had a wood and lead ſpire upon it very nearly as high as Saliſbury, and the two weſtern towers had their ſpires taken down becauſe they were unſafe ſo lately as the

preſent century. In like manner the Hereford tower was clearly built for a ſpire, and I dare ſay many others which are now reduced to a flat roof. For many of the Early ſpires were only of wood and lead, ſpires having been in their origin merely an elevated roof, and made of the uſual materials for roofing. If ſome accident had deprived Saliſbury, Grantham, and Newark or their ſpires, they would have had to be reckoned among the towers of the Geometrical ſtyle, and Norwich would in the ſame circumſtances have ſubſided into a Norman tower. And if the great Weſtern tower at Ely (the only cathedral which has its great tower at the Weſt) were relieved from the late octagonal top which has no buſineſs there, it would ſtand as the fineſt example of an Early Engliſh tower without a ſpire, with four very grand turrets at the corners, which are now overwhelmed and obſcured by the lantern.

Indeed the Early Engliſh ſtyle ſeems to me ſingularly well adapted for tower building, for this reaſon; that broad windows are not wanted in a tower, and rather ſpoil than improve it. The upper windows in the Lincoln tower have each only one mullion, and the tracery is nothing more than a ſingle quatrefoil over it; the lower windows are Early Engliſh. You need only look at the tower of Boſton to ſee that ſeveral long narrow windows ſide by ſide have a much better effect than the ſame quantity of light in one large one; for in that tower there are both: the large windows ſeem to cut out too much of the body of the tower, and make it look weak; whereas the narrow ones do not, but may even give it the appearance of ſtrength, if they are ſet ſo deep as to ſhow a great thickneſs of wall, dividing it, as it were, into ſeveral ſtrong pillars. And ſo in

ſome good Perpendicular towers, as in the lower and earlier and only decent part of the great tower at Durham, the windows are long and narrow, juſt like the earlier ones of Lincoln or Saliſbury. No ſtyle was more ſucceſsful than the Early Engliſh in its management of arcading, whether conſiſting of arches pierced as windows or left blank for decoration and not for light; and no ornamentation on a tower is ſo effective as this when well done. St. Mary's at Stamford (of which there is a picture in Rickman) is uſually referred to as one of the beſt examples, though the ſpire is later, and of courſe it is on a much ſmaller ſcale than Ely. Unfortunately very few Early Engliſh towers remain: that of Whitby fell down dead without any warning one perfectly calm day within the memory of many people ſtill living; and of thoſe which ſurvive there are none that come up to what one can eaſily conceive they might have been, if the ſame labour and expenſe had been beſtowed on them as has been laviſhed on ſome of the large Perpendicular towers I mentioned. If thoſe towers had happened to be built from 100 to 150 years earlier, I believe we ſhould have found nobody (except of courſe the thorough-going advocates of Perpendicularity and Continuity) entertaining any doubt that the Early Gothic builders were ſuperior to the Late in tower-building as in nearly everything elſe. Let us take the tower of Canterbury, as it is generally put forward as the beſt ſpecimen of a Perpendicular tower, and the one that 'moſt completely carries 'out the vertical principle,' and compare it with ſome of the Early ones in other ſtyles, or even with another Perpendicular tower, but ſo early in that ſtyle as to be almoſt Decorated.

One conſequence then of this carrying out of the vertical principle of ſtopping all horizontal lines againſt vertical ones, is that the Canterbury tower looks at a little diſtance like a mere quadrilateral priſm, ſtrongly marked with vertical ſtripes and diviſions of light and ſhade, but with no horizontal bands, breaks, or decorations whatever. Obſerve that I ſay it has that look at a little diſtance; for Lincoln and all towers with ſtraight turrets inſtead of buttreſſes at the corners neceſſarily have it at a great diſtance, when you can ſee nothing but the mere outline; though to be ſure at Lincoln there are ſmall ſet-offs in the corner turrets, ſo that the outline *is* juſt broken horizontally, and the upper ſtory is viſibly narrower than the lower; and when you come a little nearer, you ſee at once that there are horizontal bands running all round the walls of the tower and the corner turrets, and not ſtopped by them or by any other vertical projections. The ſame thing is very ſtriking in Giotto's famous tower at Florence, which ſtands by itſelf clear out of the ground 235 feet high, with corner turrets and ſtrongly marked bands or ſtring-courſes running round them, and dividing the five ſtories from each other. There is a well-known model of it ſold in the marble ornament ſhops in London, and you may ſee from that or any picture of the tower, how it would be ſpoilt by the omiſſion of thoſe horizontal bands, which juſt break the continuity of the vertical lines, and prevent it from having the ſtiff and monotonous look of the tower at Canterbury.

Another exhibition of vertical and continuous principles in that tower is, that the windows of the two ſtories are exactly over each other, and exactly of the ſame width. And in the equally celebrated tower of St. Mary's, Taunton,

there are not only two but three ſtories in the ſame condition; for the tower not being a central one has three rows of windows above the large one, which is the Weſt window of the church, as you may ſee in Rickman. Whereas at Lincoln and Ely the windows of the top ſtory are different both in ſize and poſition from the pair below it; as they were alſo at Doncaſter; which tower had ſo little of the monotonouſneſs and other defects of nearly all the Perpendicular towers that it has been ſometimes called Decorated, although the conſtruction of the windows and its almoſt aſcertained date prove that it had no right to that deſignation: but I ſhall have more to ſay about the peculiarities of that tower at the end of this lecture.

Another common fault of the later Perpendicular towers is their accumulation of ornament at the top. I muſt ſay I admire the boldneſs with which the Perpendicular gentlemen deal with that queſtion. They do not think it worth while to expend a word in arguing about it, or anſwering Mr. Ruſkin's very obvious objections (made alſo long before by Britton with regard to the Taunton tower) to the plan of removing the ornament from the lower parts where it can be ſeen to the upper where it can't, as in the claſſical ſtyle of architecture. But inaſmuch as the Perpendicular is the beſt ſtyle, as all the world is bound to admit, and as all the Late Perpendicular towers have their ornament chiefly at the top, therefore any tower is to be condemned which preſumes to have its lower parts more decorated than the higher; and then again, to complete the circularity of the argument, as none of the Early towers have their chief decoration at the top, therefore the Early ſtyles are inferior to the Perpendicular in their tower-building as in other

reſpects, except the gracefulneſs of the details, in which you remember the Early ſtyles are allowed to have the beſt of it. To be ſure, this is only the ſame kind of logic as that which diſcovered that verticality is the great Gothic principle, a diſcovery which can only be extracted from the lateſt Gothic buildings, and then proved that the lateſt ſtyle is the beſt becauſe it carries out the vertical principle moſt completely. The ornament which is accumulated ſo profuſely at the top of Perpendicular towers is uſually of the moſt uninventive and monotonous kind, conſiſting of nothing better than that everlaſting panelling in long narrow diviſions like the tracery of a Perpendicular window, which infeſts all the late Perpendicular buildings of any pretenſions. If you want to ſee it exhibited in full depravity, look at the tower of Glouceſter cathedral: not very unlike Doncaſter in its outline when ſeen from a diſtance, but in its details extremely different and extremely inferior; the windows being nothing but ſmall diviſions of the panelling, exactly over each other and of equal width, cut open, and filled again with louvres ſo cloſe to the outſide that in ſome lights it is not very evident that there are any windows at all. And the corner pinnacles, like the Taunton ones, are all cut up into perpendicular ſtrips, inſtead of being what pinnacles ought to be, ſolid terminations of the buttreſſes, carried up in that way chiefly no doubt for an ornamental finiſh, but not without a view to the increaſe of their mechanical effect by laying a little more weight on the top of them.

Juſt the ſame inattention to the proper uſe of pinnacles, and the ſame hyper-decoration of the top occurs in the Weſt towers of York. At firſt ſight you may be inclined

to ſay that the arrangement of this upper fringe of thoſe towers is the ſame as Doncaſter: not that that would make it either better or worſe. But it is not ſo. In the old tower here, which was a good deal earlier than the York ones, the pinnacles were real terminations of the buttreſſes. But at York, the buttreſſes are oſtentatiouſly cut off ſquare juſt before they reach the top, and the pinnacles ſtand upon a cornice juſt as if they were a ſet of ninepins ſet round the edge of a board and laid upon the top of the tower. If this is what Mr. Ruſkin means by applying the term 'confectioners' Gothic' to the York towers, I think it is appropriate enough; but if he means to extend it, as I ſuſpect he does, to all towers with buttreſſes and pinnacles, it is merely one of his ſweeping dogmas againſt a bit of Northern Gothic for preſuming to diſplay different principles of conſtruction from the Southern.

For you will be ſurpriſed to hear, if you have not already ſeen it in the Stones of Venice, that buttreſſes are pronounced altogether inconſiſtent with the idea of grandeur in a tower. To pleaſe Mr. Ruſkin it muſt riſe clear and ſtraight from the ground, neither interrupted by riſing out of croſs walls and roofs, like the towers of nearly every one of our cathedrals, nor with its outline broken by buttreſſes or ſet-offs. And in order to give us ocular demonſtration that he is right, he exhibits ſide by ſide pictures of two towers, one Britiſh, the other Italian; one having deep buttreſſes in ſtages, and the other riſing up to the height of our higheſt towers, without buttreſſes, corner turrets, ſet-offs, or even a ſingle ſtring-courſe or horizontal diviſion of any kind, and decorated only with long ſunk panels, very like the Railway ſignal tower here, only on a larger ſcale, and

ending in a blunt ſpire with ſome intervening work, of no particular beauty, as he admits. The contraſt is certainly ſtriking enough, and few people will heſitate in coming to the concluſion he intended, that the Venetian tower is far grander than the Scotch. But it does not prove much about the inferiority of buttreſſed towers for all that, as you will ſee in a very few minutes. Firſt, it is not a particularly fair way of making a compariſon, to exhibit together pictures of two towers, one about three times the height of the other, and aſk you which looks the grandeſt. Secondly, the one which is three times the height of the other happens alſo to be about 500 years older; and if Mr. Ruſkin had wanted to prove the oppoſite caſe, he need only have put together any old tower with buttreſſes and any modern one without, and have been tolerably ſure of the verdict being in favour of the buttreſſes. Thirdly, he might as well have told us that the modern one which he ſelects is not a ſingle church tower, but merely one of a pair of ſmall towers flanking a gateway of a Free Church College in Edinburgh. Fourthly, it is *not*, as he ſays it is, a fair ſpecimen of modern Britiſh tower building, but an eminently bad and therefore eminently unfair ſpecimen. Scotchmen are not celebrated for abuſing the productions of their own country; but I never heard even an Edinburgh Free Church man ſpeak of that pair of towers without ridicule. Anybody who really wiſhed to enable his readers to form a fair compariſon for themſelves would have put together two towers of as nearly the ſame height as poſſible, and of as nearly the ſame date as poſſible, and both as good ſpecimens as he could find of their reſpective ſtyles, but one of them on the buttreſs conſtruction

of the Northern Gothic, and the other in the Italian Gothic ſtyle without buttreſſes or corner turrets, which produce the ſame mechanical effect only in a leſs degree. It would have been juſt as eaſy for Mr. Ruſkin to give a picture of the tower of Mechlin, which is of juſt the ſame height as St. Mark's at Venice. I do not ſay that that is the very beſt ſpecimen that could be found, but from its agreement in height it will do very well for compariſon; and its breadth is increaſed at the bottom by no leſs than twenty-eight feet by the projection of the buttreſſes. Smaller towers would do equally well for compariſon, if you only draw the large and the ſmall one together, not on the ſame ſcale, as Mr. Ruſkin has done, but of the ſame ſize.

But (fifthly) it turns out that this Venetian tower is not quite ſo independent of help to its ſtraight walls as it appears to be; for there is another tower inſide it, and the two are tied together by ſtrong beams and arches all the way up, having the ſtaircaſe between them. This internal and auxiliary tower muſt contain at leaſt twice as much material as would have made the real tower twice as ſtrong by being uſed outſide in the form of *bonâ fide* buttreſſes, or corner turrets. Sixthly, it is (as Mr. Scott remarked to me) rather unlucky for Mr. Ruſkin's exaltation of the ſtraight-ſided towers of Italy, that in no other country in the world are there ſo many towers which have found themſelves unable to ſtand upright. To which may be added this ſeventh obſervation, that not only is a tower whoſe baſe is not ſpread out by buttreſſes more likely to get a leaning to one ſide, but if it does it will be far more viſible and more unſafe into the bargain.

But Mr. Ruſkin's objections to the Northern mode of

tower building, are equally miſtaken on another ground with reference to towers in this country, which has been called 'the ringing iſland,' becauſe we are the only people who ring our bells at full ſwing, the only way in which the full ſound can be got out of them. There are very few towers which do not ſhake under the ringing of a heavy peal of bells; and therefore the more ſupport they can have from buttreſſes the better, in order to ſpread the baſe as wide as poſſible. In a croſs church with aiſles like Doncaſter, the buttreſſes ſpread into the main walls and carry the horizontal thruſts along the four clearſtories to the buttreſſes at the ends. Moreover without the aſſiſtance of either buttreſſes or corner turrets a tower cannot ſafely carry a ſpire, unleſs it is made to ſpring from a baſe much narrower than the inſide of the tower, (and then it looks more like a ſpike than a ſpire,) and the tower walls thickened or 'battered' at the top inſide to carry it. So I think nothing more need be ſaid on the queſtion of the baſeneſs or nobleneſs of towers flanked with buttreſſes.

On much the ſame principle Mr. Ruſkin thinks alſo that towers look more impoſing when they riſe clear up from the ground (that being the general conſtruction of the Italian Gothic towers), inſtead of having their lower ſtories wholly or partially engaged in the walls, as ours moſtly have. *A priori*, one would be inclined to agree with this perhaps; but from obſervation I have come to juſt the oppoſite concluſion, and am ſatisfied that the Northern builders knew very well what they were about when they made nearly all their grandeſt towers riſe out of the walls of the church, and not ſeparately out of the ground; for they knew that the way to make a building look large

is not to expoſe the whole of it to be taken in by the eye at once, but to ſhow juſt enough to indicate the exiſtence of the different parts and leave the imagination to put them together, and that in this way they will be inſenſibly added up into a larger ſum than if the whole reſult was diſplayed at once. Thus the throwing open of the whole length of Durham Cathedral without the break of even a low ſcreen, has not made it look longer but ſhorter; though the removal of a huge organ on the top of a ſcreen acroſs the middle of a church is undoubtedly a great improvement and ought to be done everywhere, as indeed there is now a diſpoſition todo it wherever any other place can be found. The tower of Boſton Church riſes clear from the ground except on one ſide, while the great tower of Lincoln Minſter is a central one, and therefore what would be its two or three loweſt ſtories are merged in the walls of the Church. I don't know how it may have ſtruck other people; but I had ſeen them both a good many times before I had the leaſt idea that Boſton was anything like the height of Lincoln; and yet (according to the publiſhed accounts) it is three or four feet higher, and is the higheſt tower in England without a ſpire, viz. 266 feet. In the compariſon with Lincoln too it has the advantage of being much narrower, and therefore it ought to look higher; and yet it does not. Again, the tower of Howden, 140 feet high, always appears to me lower from the Eaſt ſide, where, on account of the ruined choir, you can take in the whole height at once, than from the other ſides, where it has the original effect of a central tower, and looks remarkably impoſing from a diſtance, where you do not ſee the details of the ugly top ſtory which was added to that and the very ſimilar tower

of Durham in late Perpendicular times. I have obſerved the ſame thing in hills, viz. that they do not appear ſo high from the ſide where they riſe at once from a plain or a river as from other ſides where the riſe is broken into long ſteps.

It can hardly have been from either ignorance or accident that the builders of the cathedrals of Lincoln, York, Canterbury, Durham, and Wells, Lichfield, and Coventry (which once had a cathedral like its ſiſter Lichfield, but larger), Saliſbury, Norwich, Rocheſter, and Chicheſter, Glouceſter, Worceſter, Hereford, Wincheſter, and Carliſle, put their principal or only towers in the middle, at the convergence of the four roofs. Nobody can doubt that they adopted the central tower plan in the grandeſt buildings rather than the Weſtern one becauſe they knew it has the grandeſt effect. Ely, which now alone of all the old cathedrals has, and Hereford, which once had, a weſtern tower, are no exceptions; becauſe they both had large, if not larger, central ones alſo: Hereford certainly, and Ely probably; for the wooden octagonal lantern in that Cathedral ſtands where there was once a Norman tower, which fell and brought down a good deal more with it, as another Norman tower did at Selby, and as the Weſtern tower did at Hereford. The double flanking towers of ſome of the cathedrals and minſters which have no central one prove nothing, becauſe they muſt be either there or nowhere. The ſingular arrangement of the pair of towers at Exeter, on the tranſepts, is only due to the laudable boldneſs of the old architect-biſhop, Peter Quivil, who turned the Norman weſt front with its flanking towers into a tranſept, when he began the Decorated nave and

choir.* What I inſiſt upon is this: that the old builders —at any rate the Engliſh ones, whoſe taſte was in many things much better than the foreign, always made *the* tower of their grandeſt churches a central one, whenever there was only one, or one which was plainly intended to be the principal. On this point I find the two writers from whom I have ſo often expreſſed my diſſent, Mr. Petit and Mr. Freeman, as ſtrongly convinced as I am of the architectural ſuperiority of a central tower over one in any other poſition.

I have no doubt that it is true, as has been ſaid by Mr. Freeman, that a central tower is originally an enlarged lantern at the convergence of the four roofs, and only a bell-tower ſecondarily by accident and convenience, while the Weſtern ones were bell-towers naturally and eſſentially. I ſhould not notice this merely as a matter of curioſity or antiquarianiſm, but I think it ſettles a practical queſtion of conſtruction. It happens that I have been conſulted about the clocks and the bells of two modern churches (one of

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* The builders of this pair of towers had too much of the genuine Gothic ſpirit and invention to be content to make their details alike; and ſo it is at Durham, and in a ſmaller degree in the later towers of Lichfield; but not in the Perpendicular towers of York and Wells. Nowadays we cannot even build a couple of chapels in a burying ground, without making the Diſſenters' one and the Church one preciſely alike in everything but polarity, and ſometimes in that too. The only inſtance of undue preference that I know of is at the Doncaſter cemetery, where the two chapels are joined by a common tower and enjoy a common bell, but the bell-rope goes down into the conſecrated chapel only. In other places there are not only two bell-ropes but two bells, two bell-gables, and all as exactly alike as two photographs of the ſame building.

them a colonial cathedral), which have central towers and ſpires riſing out of croſs roofs of two or three different heights; and I was ſtruck with the exceſſive uglineſs of the effect in both caſes. The cathedral (Frederiƈton) I only know from piƈtures, but the church (Meanwood, near Leeds) fully realizes in ſtone what I told the architect when I ſaw his plans on paper would be the conſequence of making the nave, chancel, and aiſles with roofs of three different heights converging in a central tower. (I do not mean that the church, though an expenſive one, would have been worth notice even if this particular defect had not exiſted; but here as elſewhere I take the illuſtrations with which I happened to be beſt acquainted.) And the uglineſs of this arrangement is by no means difficult to account for. Firſt, one can hardly conceive anybody deliberately deſigning ſuch a thing as four roofs of different heights converging in one croſs. I have already mentioned that the builders of the eaſtern tranſept of Beverley Minſter took care to make it of the ſame height as the choir which it croſſes, though it is of a different width, and conſequently involves a different pitch of roof. The next ſtage is the addition of a lantern at the convergence, only riſing juſt to the ridge of the roofs, as at Beverley and Weſtminſter Abbey; and it would be nearly as bad, both internally and externally, to make theſe roofs of different heights, as it would be if there were no lantern. Next come the low lanterns, ſuch as Peterborough and Ripon, riſing a little higher than the roofs; and it is evident that they too would look very ill with only a little bit above the nave roof and a great deal more above the choir or tranſepts. And whatever is the height of the lantern tower, ſtill the ſame prin-

ciple applies, and *à priori* juſtifies the concluſion which I think every eye arrives at inſtinctively the moment that it ſees a tower riſing out of roofs of different heights. I know that the architects who contrive theſe things are ready with the excuſe that old precedents can be found for them. But I ſuſpect that in all of ſuch precedents it would be found alſo that there had been ſome change of plan between the building of one roof and the other; and generally, if not always, that the higheſt was the lateſt, except of courſe where the inequality has come from that wilful deſtruction of an old high-pitched roof in which the Perpendicular people ſo much delighted. And even if it were not ſo, nobody will deny that ſuch examples are the exception and not the rule; and I ſhould ſay of them as of bad window architecture, for which plenty of old precedents can be found, that I am not diſpoſed to admit that the old architects having miſcarried ſometimes is any excuſe for modern ones miſcarrying always, by copying their miſtakes and overlooking their beauties.

But notwithſtanding the ſuperiority of central towers as an architectural feature in large churches, it muſt not be forgotten that they can now very ſeldom be what they were intended for internally, that is, lanterns throwing down light into the church at the convergence of the roofs. Nowadays we ſhould not tolerate the ringing of the bells from the floor of the church, which had evidently been the practice once in the old tower of Doncaſter, and at Howden, and many other places; and conſequently the windows which would have formed the lantern are cut off from the church by the belfry floor, which muſt be not leſs than twenty feet below the bell-chamber. At Howden they have lately

made a ſingular attempt to recover the effect of their once magnificent lantern with its very lofty windows. The authors of it appear to have thought that, as their tower is very like the great tower of Durham (to which dioceſe it belonged as a Peculiar formerly), and as two or three bells are rung at Durham from a gallery built round the inſide of the tower, without deſtroying its effect as a lantern, there was no reaſon why it ſhould not do as well for ringing the peal of bells at Howden; and ſo they have built a wooden ringing gallery inſtead of the belfry floor; no wider I dare ſay than the Durham one: only they forgot that as the area of the Howden tower is leſs than a third of the Durham one, ſo that which looks very well and appears only a narrow gallery round the large tower becomes a mere floor with a hole in it in the ſmall one. So that after all you can hardly get a ſight of the lantern windows: though the hole is quite large enough to pour down ſuch a flood of cold air from the rope-holes and open windows of the bell-chamber above that they are obliged to ſcreen off the whole tower in cold weather with a curtain. The ſame thing has been done ſtill more lately at Merton College chapel; only there, in order to make ſure of the lantern effect and to ſhow its carved roof, the architect has made the gallery ſo narrow that the College might as well have ſold their fine peal of bells to pay the expenſes, as it is utterly impoſſible to ring them; and the lantern is a very dark lantern after all, being lighted by only one window on the Weſt ſide, where the nave ought to have been which was never built.

In both theſe caſes and any ſimilar ones, a real lantern with the proper uſe of the bells can only be recovered by

ringing from the floor in the old way. At Merton there would be ſome inconvenience in this, and the lantern was really not worth opening, for the reaſon I gave juſt now. But Howden is; and it not only might have been done without difficulty, but the tranſepts would have been far better as they were, than cut up into three little bits by a couple of miſerable partitions with which they have tried to make a ſham chancel under the tower, with a window looking into the real ruined chancel, worthy of the reſt of all this contrivance. They had far better have kept the ſcreen—or rather made a ſcreen of proper height and character, where it was before, at the weſt end of the nave, with the Communion table juſt before it; and then they might have had the lantern complete, and viſible from the church, and an unbroken view through the tranſepts, which are very fine and large. And when they are forced to uſe the curtain on account of the cold, it would not have had the remarkable effect of making the church look as if it had no Communion table. As I have reviled architects a good deal I muſt add that I believe an Architectural Society rather than a profeſſional architect is entitled to the glory of theſe ingenious 'improvements' of one of the fineſt churches in Yorkſhire.

I was aſked the other day how I juſtify the building of a croſs church here at all, and why we do not get the ſpace we want by other means than building tranſepts, in which ſome of the congregation muſt be behind the large central pillars. The queſtion is not very difficult to anſwer. After you have got a nave as long as an ordinary preacher can be heard in, and as broad as it ought to be in proportion, in which direction are you to extend the building if it is ſtill

too ſmall for the congregation you want to provide for? Clearly you would not advocate an extenſion of the chancel; for there the people would be in a worſe place for hearing, in a large church, than in tranſepts. You muſt therefore either make the nave too large for the whole of it to be uſed by the congregation, or you muſt ſpoil the church by returning to the abomination of galleries, or you muſt build tranſepts. In the new church here the tranſept ſpace (including the area of the tower) adds to the church more than one-third of the area of the nave, or allowing for waſte of room in paſſages, the tranſepts will add about 300 ſittings to the 900 of the nave. I have juſt now ſeen a church in Shropſhire built on the moſt ſtrictly utilitarian principles of uglineſs which prevailed in the early part of this century, and which I underſtand uſed to be held up by its builder, a deceaſed Archdeacon, as a model for parochial imitation. It conſiſts of five ſquares; the firſt is the nave, the ſecond the chancel, the third one tranſept, the fourth the other, and the fifth the ſquare in the middle: in fact a perfect Greek croſs, only compoſed of bricks, plaiſter, and blue ſlates, and with a ſmall turret at the weſt end for the one bell which was kept when the others were ſold towards paying the expenſe of pulling down the old church and building up this new one. So you ſee the building of tranſepts or croſs churches is not a mere architectural freak of either the ſuperſtition of the middle ages, or the blind imitation of them by modern Gothic builders. In the pariſh church at Leeds, inſtead of building real tranſepts of a proper ſize, that is, as wide as the nave, and projecting twice the breadth of the aiſles beyond it, they have built what are hardly to be called tranſepts, but rather two large porches; and have

made up the ſpace they wanted by adding another aiſle north of the North aiſle, buried under a gallery, and in which I ſhould think nobody can either hear or ſee the miniſter. And this was done to evade the neceſſity of building a tower of the proper width, as they muſt have done if the tranſepts had been of the proper ſize; and inſtead of rebuilding the old broad ſquare and low central tower (if they could not afford to make it higher), they have built a ſecond-rate thin tower over the North tranſept, or rather the North porch, for it is nothing elſe.

Of courſe I know that a central tower rather obſtructs the view inſide the church by requiring larger pillars than if there are only tranſepts without the tower at their interſection. And therefore I would *not* have a central tower, or tranſepts either, in a ſmall church where the ſpace occupied by the pillars would be too large in proportion to the reſt. But you may ſay, Why not keep the tranſepts, but remove the tower to the weſt end or ſomewhere elſe? To which I anſwer, Becauſe I think the architectural effect is bad; and if the church is ſo ſmall that it will not bear a central tower, there cannot poſſibly be any need of tranſepts. But when there are no aiſles there is no difficulty in making a central tower to a church ever ſo ſmall, becauſe then no great tower pillars are neceſſary, as the four angles of the walls, if properly dealt with, will be ſtrong enough to carry any tower, by reaſon of the natural abutment afforded in every direction by the eight walls of the nave, tranſepts, and chancel. And as for the modern ſyſtem, diſplayed at Leeds as I ſaid juſt now, beſides a multitude of other places, of putting the tower on an aiſle or a ſmall tranſept or ſome other narrow place in order to

evade the neceſſity of building the tower of a proper ſize, the reſult is what it always is when people try to make grand effects out of inſufficient materials—contemptible. Even where a tower of ample dimenſions has come to be out of the line of the nave in an old church, through ſome change of plan while building, the effect is very inferior to that of a tower in the proper place. In the celebrated church of St. Mary, Redcliffe, at Briſtol, the tower (but for its decay and the partial deſtruction of the ſpire) is remarkably fine, and even wider than the nave, and vaſtly ſuperior to the body of the church, which is late Perpendicular of the moſt monotonous kind. But the general effect is very much ſpoiled by the tower ſtanding at a corner of the building, inſtead of being at the croſs of the roofs. The model of this church in the Architectural Muſeum in Cannon Row, Weſtminſter, diſplays the faultineſs of this arrangement perhaps more diſtinctly than it now appears in the church itſelf on account of the difficulty of getting a comprehenſive view of it from the ſtreet in which it ſtands.

I ſay therefore that unleſs you are prepared to incur the expenſe of a central tower (which you can't ſtint of its proper width) you had better not build a croſs church at all, as it only ſuggeſts the idea of either poverty of invention or money. Boſton Church, and St. Michael's at Coventry prove (if any proof were needed) that you can get ſpace enough for any congregation in England without tranſepts, although architecturally the old tranſept plan is undoubtedly much grander than the comparatively modern one of building aiſles nearly as wide as the nave. If you are building merely with the object of getting as much ſolid

content as poſſible for your money, then you know how to ſet to work without reading books on Architecture; but if you are giving or getting a large ſum of money for the purpoſe of building a handſome church as well as a large one, then at any rate the plan ſhould not be inconſiſtent and incongruous, and you ſhould not aim at effects which you are not prepared to carry out completely. Adding tranſepts will coſt more than widening the aiſles; and you had much better widen your aiſles and build a *good* tower at the Weſt end, than throw away the difference between the coſt of a good one and a bad one on a couple of poor and ſtarved-looking tranſepts, which you cannot afford to complete with a tower at the interſection of the roofs.

Here again mechanical reaſons exactly concur with the purely architectural ones, and ſuggeſt the building of a tower where the tranſepts croſs the body of the church. For where there are tranſepts there neceſſarily are alſo the four large arches ſpringing from capitals a long way above thoſe of the nave and chancel arches, and therefore on mere mechanical grounds requiring larger pillars under them, and a greater weight upon them, to balance the thruſt of the nave and chancel arches; ſo that the impoſing of a tower upon thoſe pillars is ſuggeſted even by the internal aſpect and conſtruction of a croſs church; and I have no doubt that central towers gradually roſe exactly in that way, firſt as lanterns hardly higher than the roofs, and afterwards increaſed to the ſize of Lincoln and Saliſbury for architectural effect. And hence it is that ſuch churches as Beverley and Weſtminſter, with no tower riſing from the croſſing of their main roofs, always have an

appearance of incompleteneſs. Of courſe there are places, as when a new church has to be built on ſuch ground as you can get in the middle of a large town, or from other local reaſons, where the tower muſt be ſet at one of the corners; and there the buſineſs of the architect is to adapt his plan to his poſition. But there are dozens of churches ſprung up of late in which the object of the architect has apparently been to put the tower anywhere but where you expect it, viz. at the interſection of the roofs in a croſs church, and at the weſt end in a ſtraight church; partly, as I ſaid juſt now, to get the elevation of a ſpire cheap, and partly from that diſpoſition to invent ſmall ſurpriſes, and to get into little difficulties for the ſake of ſhowing their ingenuity in getting out of them again, which Mr. Scott juſtly ridicules in his book on Reſtoration.

The ſame ridicule may be extended with equal juſtice to another habit, in appearance oppoſite to this, but in principle juſt the ſame; viz. that of building ſmall village churches as if they were young cathedrals, with half a dozen different roofs, and tranſepts of about the ſize of a good porch, and a central ſpire, and a veſtry oſtentatiouſly diſtinct, like that chapter-houſe veſtry which I ſpoke of in the laſt lecture, and windows of ſome large pattern reduced to a ſmall ſcale: all which is juſt as unlike the ſmall churches of old, as the old parſonages or any other old ſmall houſes are unlike the things impoſed on modern parſons by eccleſiaſtical commiſſioners and architects, with chimneys in the outſide walls to keep the garden warm, and ſmall rooms with large windows, and which coſt more to build and twice as much to keep in repair as a plain and ſolid houſe with far more room in it and much leſs pretenſion. It is

very odd that people will not remember that a re-entering angle (A) involves juſt as much maſonry as a ſolid angle (B), and juſt cuts off ſo much from the room in the houſe ;

and therefore, although ſuch things may be well enough in building a large houſe with plenty of room and plenty of money to ſpend upon it, they are extremely abſurd in building ſmall ones where every ſquare foot and every pound are of conſequence to the man with £200 a year or leſs, who has to pay for the houſe or to live in it, or both.

Hitherto I have made no diſtinction between towers and ſpires ; or rather I ſhould ſay, between towers with ſpires on them and towers without : for it muſt be remembered that a ſpire is not a ſubſtitute for, but an addition to a tower, in the form of a very high roof, generally of ſtone, but ſometimes of wood and lead like other roofs. Some of the early ſpires were no ſharper than the angle of a high gable ; and a good many foreign churches, and a few Engliſh ones, had tops in the form of a common roof-gable, which are called ſaddle-back roofs. So there is no doubt that a ſpire is the roof of a tower ; and therefore the higher the ſpire is intended to be, the higher, and larger, the tower ought to be alſo. Whereas it ſeems to be thought now, that if the builders of a church can only ſay it has a ſpire 150 or 200 feet high, it is of no kind of conſequence what ſort or ſize of tower it riſes from, or how thin the ſpire is.

And here I take the opportunity of ſaying that the ſpire lights, with their projecting canopies, ought in my opinion to be very ſmall. I don't know that I can better illuſtrate the difference in effect between large and ſmall ones than by a compariſon of the two neighbouring ſpires of Grantham and Newark, both in the ſame ſtyle, but the former with the outline ſcarcely broken at all by the window canopies, while the latter is almoſt made into ſteps by the numerous projections of that kind. There ought to be ſome holes in a ſpire for ventilation, and alſo for light, but I ſee no uſe in any projecting canopies over them, eſpecially as they do not really keep the rain out. At Saliſbury, the grandeſt of all our ſpires, the outline is quite ſtraight, and the ſpire is only ornamented by bands of diaper work which look better than anything elſe, and the air holes may be pierced in it. The ſpires of Lichfield and various others are crocketted at the edge, which alſo looks well, though I think it very inferior to the horizontal bands.

The too frequent piercing of a ſpire with long windows makes it approach to the foreign ſtyle of ſpires which are ſlit into ſtrips of ſtone rather than left as a roof to the tower. In this, as in many other points which I have touched upon, a little attention to the origin and primary object and mechanical requirements of the different parts of a building, will generally ſhow pretty well what is the right architectural way of dealing with it. There has ariſen of late a faſhion of running down our Engliſh Gothic as contemptible in compariſon, not merely with Mr. Ruſkin's Italian Gothic, but with the Northern Gothic of the continent, eſpecially the very high cathedrals of France and Belgium. No doubt that vaſt height of body is very impoſing, and we

have nothing like it. But it is not obtained without ſome ſacrifices. That exceſſive elevation and ſlenderneſs of fabric is inconſiſtent with the appearance of ſolidity and maſſiveneſs and diſtinctneſs of outline which our great churches poſſeſs no leſs than our ſmall ones. Some of the foreign ones may be ſaid to have no outline at all. Whichever way you look at them, you ſee a foreſt of pinnacles and flying buttreſſes, almoſt like a church ſtill enveloped in the ſcaffolding put up to build it. I frequently ſit in a room facing two large pictures of Cologne and Lichfield. If you want to compare two buildings with reference to their conſtruction and proportions only, without being unduly biaſſed by the ſize of the larger, of courſe you ought to compare them by pictures of the ſame ſize, but on different ſcales—not as Mr. Ruſkin compares Engliſh and Italian towers. And I have no heſitation in ſaying that at ſuch a diſtance as one ſees pictures on a wall the general effect of Lichfield is in my opinion very ſuperior to that of Cologne (which of courſe is infinitely grander in the reality), juſt on account of its more diſtinct outline and the great ſuperiority of its ſpires, both in form and in poſition, Cologne wanting the great central one. Some of the foreign ſpires are ſtill more perforated and cut into ſtrips than theſe of Cologne, ſo that they look almoſt as if they were of iron inſtead of ſtone. I ſhould be ſorry to ſee that ſtyle of ſpire introduced here. Nor have I any wiſh for thoſe exceſſive heights which the continental architects delighted in. I have no doubt the builders of York and Weſtminſter could have given very good reaſons why they did not make them 150 feet high inſtead of 100. At the ſame time it muſt be confeſſed that ſome of our cathedrals are too low, and none

perhaps more ſo than Lincoln and Lichfield, eſpecially the former, conſidering the width of the nave and choir. As I have been cenſuring foreign ſpires, I muſt add that there are ſketches of two or three very fine and ſolid ones, and with very fine towers under them, in Mr. Petit's book on the architecture of France. But I am not convinced by that or anything elſe, that the Continental Gothic of the North was on the whole ſuperior to ours, though very ſuperior indeed to that of the South.

I think if people had reflected on that obvious fact which I have mentioned ſeveral times, that a ſpire is properly only a ſtone roof to a tower, we ſhould have had both fewer and better ſpired towers. They would then have ſeen that ſuch a tower ought to be ſomething better than a mere pedeſtal to ſet a tall ſtone ſpike upon; and, as a good tower with a ſpire upon it is rather an expenſive article, the mania for ſpire building would have been checked by the moſt effective of all impediments. But as it is, a ſpire has come to be thought almoſt as neceſſary a part of a church as a chancel. Neither poverty nor wealth ſeem to make any difference. If an architect wants to captivate a ſet of cemetery commiſſioners with a competition plan of a double chapel and a ſexton's houſe all for £1600, he knows that he muſt bait it with a ſpire; and nobody will ever think of examining, until it is too late to get rid of him, whether the ſpire will even be ſafe to ring the bell in for which it is built, nor indeed whether it is ſafe to ſtand at all. Three or four church towers in my recollection have fallen down almoſt as ſoon as they were built; and in the cemetery chapel I allude to, they have been obliged to give up the idea of ringing the bell, and can only venture to toll it; and

if a certain iron bar were cut through, the ſpire would fall in a week. Give an architect a chance not merely of building a new church, but of rebuilding an old one which has been known for ages by its tower, and it is ten to one that he will ſend you a plan in which the old tower has been pinched up into a modern ſpire. A clergyman near Torquay lately ſhowed me his plans for rebuilding with a ſpire a church on the top of a hill with a tower which has been conſpicuous for miles all round for ſome 400 years. So much of the reſtoration as is done, at the eaſt end of the church, is unuſually good; and I am glad that he has not yet been able to raiſe the money for the reſt, for I hope that before they have worked much further towards the weſt, he or his ſucceſſor may have their eyes opened to the impropriety of thus effacing the moſt characteriſtic feature of a church which they are profeſſing to reſtore.

This mania for ſacrificing everything to a ſpire is extremely abſurd, independently of any ſuch queſtion of reſtoration. Juſt think what we ſhould have loſt by it if our anceſtors had been equally narrow-minded. We ſhould have had none of thoſe great towers which I enumerated at the beginning of this lecture, and which are all, in ſpite of ſome defects, remarkable and beautiful in their way, and all add to that endleſs variety which Gothic architecture is capable of in this as in all its other features. We need not waſte time in diſcuſſing whether a ſpire 250 feet high is better or worſe than a tower of 150; for there is plenty of room for both: ſtill leſs in refuting ſuch nonſenſe as that ſpires muſt be grander than towers becauſe the towers of Saliſbury or Grantham or Coventry would be firſt rate towers even if the ſpires were knocked off. For everybody who is worth

arguing with muſt know that the practical queſtion which church builders have to conſider, is whether they ſhall ſpend a given ſum of money in building a low tower with a ſpire upon it like the Lichfield ones, or a higher tower without a ſpire, like thoſe I mentioned juſt now. Let anybody give us (before it is too late) the additional ſum that it would coſt, for the purpoſe of *adding* a ſpire to the tower which we hope to build here, and I ſhall ſay, by all means add it; but to anybody who ſhould recommend us to ſpend the £4000, which this tower will coſt, in building *inſtead* ſuch a tower and ſpire as can be built for that money, I ſhould reply, go and build your ſpire ſomewhere elſe, where you can't at any rate be charged with doing your beſt to efface the recollections of 430 years, and the image of one of the moſt ſucceſsful productions of the Northern architecture. Only I ſhould add, do not go and build your ſpire among the mountains, where nature laughs at your 150 or 250 feet, but be content with a broad ſquare tower there, which will raiſe no idea of competition with the hills, but will be a beautiful variety to their ſloping irregularity; and put your ſpire on a plain, where its elevation will be the moſt ſtriking object for many miles around. Do not ſuppoſe that I propound this as any diſcovery of mine: it has been ſaid long enough ago, and would have been attended to, if things twice as obvious and important were not every day overlooked or neglected.

Among other reaſons for determining whether a new church ſhould be built with a ſpire or not, this will ſometimes be ſufficient. A city of ſpires or a city of towers will generally have a finer effect than the ſame number of churches half of one kind and half of the other. If the ſpire

towers are good, they dwarf the unſpired ones dreadfully; and if they are low, then the high towers without ſpires make the ſpires look thin and poor in compariſon. The people of Lichfield determined a few years ago to rebuild the tower of St. Mary's as a kind of monument to the memory of a former vicar of the pariſh.* At firſt, one would probably think it more prudent to build ſuch a tower without a ſpire, as it would appear to compete with thoſe of the cathedral, which has the additional advantage of ſtanding on higher ground. However a ſpire was adopted, and it ſtands on a tower of very good height in itſelf; and although there are plenty of the uſual faults in the details, it groups remarkably well with the ſpires of the cathedral and St. Michael's church alſo, when ſeen far enough off to catch them all together, and is undoubtedly a great addition to the eccleſiaſtical and architectural aſpect of the city. And the ſame may be ſaid of its ſiſter Coventry; though it has loſt its old cathedral, which was of the ſame form as Lichfield, it ſtill has three churches with ſpires, in the poſitive, comparative, and ſuperlative degrees of magnitude; and they have together a grand effect, and completely overwhelm an unfortunate tower which you ſee from the railway with them. I do not remember a town equally diſtinguiſhed for towers, except perhaps Oxford; but there is a ſecond at Taunton beſides the famous tower of St. Mary's there, and neither of them at all detracts from the effect of the other, though very different in character, but the two look much grander than any inſtance I know of a tower and ſpire ſeen together.

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* The Rev. Henry Lonſdale, the preſent biſhop's brother, by an odd coincidence; for he was Vicar before the biſhop was Biſhop.

There is no doubt that a firſt rate tower, as broad as the nave of the church and about three times as high as the walls, is more coſtly than what would nowadays be talked of as a very fine ſpire. But if you will only be content with breadth, which is a true and genuine element of grandeur in a tower, the expenſe is nothing frightful. If one had any wonder left for anything of the kind, we might be ſurpriſed that nobody has thought of trying, if only for the ſake of variety, the effect of thoſe broad towers like Sherborne or Perſhore or Melton Mowbray, or even lower ones, ſuch as may be found in the Southern counties, where they are often built with flints or ſmall ſtones, which will do perfectly well for a broad tower with thick walls, though not for a ſpire. Such towers might very well be built of bricks, with only ſtone windows and dreſſings—or even without them, if you take care to give them the proper effect by depth of windows, and ſhow that you have been aiming at ſolidity and maſſiveneſs and not elegance and elevation. I remember being ſtruck with the effect of a very plain tower at Tarvin near Cheſter, and on looking more cloſely I could find nothing to account for it except the unuſually deep ſetting of the windows, which are of very moderate character in other reſpects. Indeed the pattern of tower windows is always of much leſs conſequence than their depth, as they are generally too ſmall and too high to be much obſerved. The ſhape and the great ſhadows of a tower are the things that catch the eye and determine the effect, eſpecially as towers are looked at farther off than the walls of a church can be.

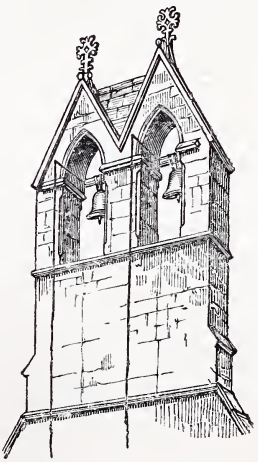
There is yet a further reaſon againſt this modern plan of building for height only, and not for breadth. Not only

does it fail architecturally, like all attempts to get grand effects out of small materials, but it displays either ignorance or contempt of the main object for which church towers are designed. They are of course primarily and properly campaniles or bell towers; and even though it may be uncertain how soon they will have a peal of bells in them when they are built, the builders have no right to presume that they never will, or to make them incapable of holding their proper furniture properly. I do not suppose that any architect—much less anybody else, would contradict this as an abstract proposition. But nevertheless nine out of ten modern towers (even omitting those which are obviously so small that they cannot be supposed capable of more than two or three bells) are built as if the architect supposed it was the bell-founder's business not only to cast and hang the bells, but to make the tower large enough to hold them, and strong enough to bear the swing, and to invent some way or other of making the sound find its way out of the windows, wherever they are and however small they are. Oddly enough, almost as I am writing this, I have got a letter from a person unknown to me, but describing himself as a London bell-ringer of twenty-six years standing, and a member of a society which occasionally rings all the large peals of bells in and near London, and complaining that of all the churches built there within the last thirty years there are only two, St. Giles's Camberwell and St. John's Hackney, which are properly adapted to the peals of bells which they contain. The fault of nearly all the towers, whether with or without spires, is that they are too narrow for a good sized peal of bells, and of the towers with spires that they are too low into the bargain; and to these may be generally

added another fault, that the bell-chamber windows are ſo ſmall that not half the ſound of the bells can get out.

Thus in the tower of the new pariſh church of Leeds there is a large peal of twelve bells (or rather thirteen, for there is a double ſecond bell in order to make a light peal of eight leaving out the four largeſt) crammed into a tower barely large enough to hold a peal of eight comfortably and at a proper diſtance from the walls. Sometimes they are actually obliged to hang ſeveral of the bells above the others—a moſt objectionable arrangement; for one row of them muſt be above or below the windows, and they are alſo generally more difficult to ring and more unſteady when hung in that way. Even when they are all on one level the ropes often have to be guided down obliquely in ſmall towers: never in a large one; and that alſo makes them harder to ring. In a tower which is nothing more than a baſe for a ſpire, the bells have to hang ſo low that they are ſcarcely above the roofs of the houſes, and ſo are diſagreeably noiſy at a little diſtance and yet hardly to be heard a good way off: whereas good bells properly placed always ſound the beſt at a diſtance. And when they are clear of all theſe defects in the tower, the architect generally contrives to bottle up the ſound as much as poſſible by filling the bell-chamber windows with cloſe louvres deeply overlapping each other, ſo that even the ſound which does get out is as it were ſhot down on to the roof of the church, inſtead of being allowed to ſpread freely. In order that a peal of bells may produce the proper effect, the tower ſhould be large enough to let the bell-frame ſtand at leaſt two feet from the wall all round; and the bells ſhould neither be below the bottom of the windows when they are tolling

(i. e. ſwinging ſlowly with their mouths downwards) nor above the top when they are ringing in full ſwing with their mouths upwards; and the windows ſhould be large, and the louvres wide apart and not much inclined, ſo as to keep in the ſound as little as poſſible. Mr. Ruſkin alſo abuſes cloſe louvres on architectural grounds, and notices the grand effect of the large wide ones in many foreign churches. Ours are generally made as if the architect ſuppoſed that the bells would catch cold and loſe their voices if they got wet; whereas bell-metal is perfectly indifferent to it; and if the bell-chamber floor is covered with lead or zinc outſide the bell-frame and drained into a pipe in one corner, no rain that can come in through louvres however wide will do any harm either to the bell-frame or the floors underneath; and ſnow you cannot keep out with anything except cloſe ſhutters; nor birds without wire netting, which ought always to be put inſide the windows to prevent them from depoſiting guano and ſticks.



Little Caſterton Church, Rutlandſhire.

A couple of ſmall bells in an open bell-gable, ſuch as this, will often be heard farther than a peal of ten times the weight ſhut up in a tower under the diſadvantages of confined ſpace, bad poſition, ſmall windows, and cloſe louvres. The clock bell at the railway ſtation here, which I prevented from being encloſed in louvres at all, is heard

farther than the clock of the old church uſed to be, which ſtruck on a bell of five times the weight and far more open than they generally are in modern churches, though not open enough.

In connection with this part of the ſubject it occurs to me to mention the tower ſtaircaſe as a thing which is not often managed very ſucceſsfully, either in ancient or modern times. When the tower is flanked with corner turrets, of courſe the treatment of the ſtaircaſe is ſimple enough, by putting it in one of them. But in others you ſometimes ſee it carried up in a turret of its own all the way and riſing above the roof: ſometimes it ſtops half way up: ſometimes the walls and buttreſſes are thick enough for the ſtaircaſe to lie wholly within them without any projection beyond filling up a little of one corner inſide; and I cannot refrain from noticing that curious ſtaircaſe in Tamworth church, which is in fact two ſtaircaſes *interleaved*, the door of one of them opening into the church-yard and the other into the inſide of the church, but both emerging together at the top. As you go up one you have the ſteps of the other over your head, juſt as two flies walking up the threads of a double corkſcrew would each have the other thread above him and would never touch it, and both would arrive at the top together. Moreover people who build central towers in a church with aiſles muſt remember that they have to make proviſion for the ſtaircaſe beginning at one corner of the tranſept and joining the tower by a horizontal paſſage. This paſſage is often nothing more than the gutter of the tranſept roof, but it is much neater to make it, as it was at Doncaſter, a paſſage in the wall, which may be made an ornamental arcade; only it muſt be glazed internally on

account of the draught which will otherwiſe come from it, as I know by experience in another church. At Doncaſter the whole of the ſtaircaſe arrangement was remarkably good: up to the top of what was originally the lantern, i. e. the lower windows of the tower, the ſtaircaſe turret was outſide, and did not project beyond the buttreſſes; but above that height, where the buttreſſes got ſmaller, it was ſhifted to the inſide of the tower; and of courſe the cutting off a corner of the bell-chamber did not ſignify. I muſt ſay I think the ſingle turret carried up to the top is almoſt always very ugly, and there is no uſe in it, as the aſcent from the belfry to the bell-chamber and the top of the tower may juſt as well be performed by a couple of ladders, if the walls are too thin to carry a ſtaircaſe in their inſide.

It is hardly worth while to ſpend any time in deſcribing ſpecimens of the different claſſes of towers, which may be ſaid to be three in number: 1. Towers with corner turrets like Lincoln, which generally riſe into four ſmall ſpires of their own, and which is perhaps the grandeſt form of all. 2. Towers with buttreſſes at the corners, either diagonal or ſquare, of which I think the two beſt ſpecimens are Boſton as a Weſtern tower, and Doncaſter as a central one. 3. Towers like the Norman and ſome ſmall and very plain Perpendicular ones, without either turrets or buttreſſes. Mr. Ruſkin you know conſiders this the higheſt type: you can judge for yourſelves how far he has proved its ſuperiority. All theſe different forms ſometimes have ſpires added to them, but that which is beſt adapted for a ſpire is undoubtedly the ſecond, becauſe a ſpire neceſſarily has a tendency to ſplit the walls open which carry it, as a dome has in a much greater degree, and therefore the abut-

ment or ſtride of the tower ought to be extended as wide as poſſible by buttreſſes. Corner turrets produce the ſame kind of effect, but not ſo completely unleſs they are enormouſly thick. The tower of Grantham begins with buttreſſes which gradually die into corner turrets ending in ſmall ſpires at the riſe of the great one, ſo that there is the mechanical advantage of the buttreſſes and the architectural one of the turrets or large pinnacles at the junction of the tower and ſpire: which junction is a matter perhaps as difficult to manage ſucceſsfully as any. What is called a brooch ſpire (from its reſemblance to the tool for widening holes which goes by that name), or a ſquare tower merely chamfered off into an octagon ſpire, I think ſeldom looks well. Mr. Ruſkin, as you may remember, condemns that conſtruction as eſſentially defective, though the only Engliſh modern church which he commends happens to poſſeſs it. I muſt ſay that on the whole ſpires are generally the leaſt defective part of modern church building. I know ſeveral new churches in which there is not a ſquare yard of wall without ſome glaring fault, and which yet poſſeſs very creditable ſpires. But of modern towers, whether with or without ſpires, I do not know one that can be called decent. I will therefore finiſh this lecture with a ſhort deſcription of that one which I have already mentioned ſeveral times as being in my opinion not only the beſt of the ſtyle to which the great majority of the moſt celebrated towers in the kingdom belong, but very nearly the beſt of all. Even if you do not agree with me in this, everybody who knew it will agree that it was *among* the beſt; and as it is no longer in exiſtence it may be the better worth while to record ſomething of its peculiarities

while they are tolerably freſh in our recollection. I mean of courſe that of St. George's church at Doncaſter.

It was among the higheſt of our pariſh church towers, and the new one, which is to reſemble it in form, will be actually the higheſt central tower of any pariſh church in England; and therefore, if its architectural character is at all commenſurate to its ſize, it muſt be in all reſpects one of the grandeſt of our towers; and yet I do not think it has ever received full juſtice in any of the notices of it in architectural books. If you only judge of it from the pictures which exiſt, you may be inclined to think I have rated it too high; for none of them properly exhibit the peculiarities on which its ſingular beauty depended: not even Mr. Scott's large picture of the new church, as I ſhall explain preſently. Perhaps the worſt of them all is the one which might have been expected to be nearly if not quite the beſt, viz. that in the book of the Towers and Spires of England which I mentioned before, with an introduction on the ſuperiority of the Perpendicular ſtyle of tower building. The beſt I have ſeen, though that is by no means perfect or does juſtice to the depth of the windows, is a lithograph publiſhed by Mr. Hartley of Doncaſter ſoon after the fire. So far as the general form goes, the one in this book has been made as correct as poſſible, but the ſcale is too ſmall to ſhow the details accurately.

This tower is a ſtriking illuſtration of the juſtice of a remark made by Mr. Scott after he had been re-examining a number of churches with a view to the determination of the proper ſtyle to adopt for the rebuilding of this. He ſaid that although there are many admirable things in many Perpendicular buildings, yet on looking cloſely at them you

find that their beauty generally reſolves itſelf into a very cloſe approximation to ſome of the eſſential qualities of the early ſtyles. And if you remember what I have ſaid about the ſuperiority of the Perpendicular windows of St. Mary's Beverley to the Flowing ones in the Minſter, or remember the windows themſelves, you will ſee how a Perpendicular building may have beautiful features in it, and yet thoſe very features borrowed from a ſtyle much earlier. The tracery of thoſe ſame Perpendicular windows has nothing in it to admire; and that is eſſentially Perpendicular: but the deep ſetting from the outſide, and the highneſs of the arches, and the thickneſs of the tracery, are admirable; and theſe are all qualities of Geometrical windows almoſt always, but only of Perpendicular ones occaſionally. And ſo it was in this tower: not only were the windows deep, but they were unuſually deep: the upper ones, as I ſaid before and want to inſiſt upon again, were ſet as deep as they could be; taking up, not one third (as in modern practice and with modern walls), nor one half (as is uſual in old churches with good thick walls—except in the worſt period of the Flowing ſtyle), but very nearly the whole thickneſs of the wall, in order to get the depth which the builder of that tower knew he ought to have for producing the proper effect and ſhadow at that great height.

The next thing I wiſh you to obſerve is one that you can ſee in this drawing in the frontiſpiece; and that is the diſſimilarity of the upper and lower windows. You ſee they are in pairs, juſt as thoſe at Taunton and Glouceſter and Canterbury are. But they contrive juſt not to ſtand over each other, as thoſe do, but a little aſkew, the lower ones being put cloſer to each other than the upper, and not in

the middle of the diviſions which belong to them. Obſerve again that the upper windows are conſiderably larger than the lower, and how very much better the effect of that is than of the oppoſite arrangement at Howden and Durham, where the upper windows are the ſmalleſt, and the top ſtory looks like a ſquare box dropped by miſtake on to the top of the lower one, or even at Canterbury where the upper windows are like the lower, only ſhorter. The great tower of Lincoln, being of much earlier date, naturally has them the right way, the lower windows being as much ſhorter than the upper as at Durham and Howden they are longer. The tower of Hedon Church is the moſt like this of any, but the windows there are all lower, and certainly the whole effect is inferior. That tower alſo, like this, was built up in the middle of a church two hundred years older.

I have already pointed out the difference between this tower and the weſtern ones of York and Beverley, and others of the ſame family, in the arrangement of the large pinnacles, which here riſe out of the buttreſſes as their proper finials, but in the others have no connexion with the buttreſſes, and give an appearance of weakneſs and inſecurity to the whole top of the tower. Moreover all the ornament here was not thrown into the higheſt ſtage, as in Taunton and the later towers, but chiefly into the band between the two ſtories, where it can be ſeen diſtinctly and produces great richneſs of effect, if cut deep enough.

Another peculiarity of the Doncaſter tower was the elegance of its outline. I have ſaid that Mr. Scott's large picture is not an accurate repreſentation of it. It was immediately perceived to be inaccurate, even by many perſons who could not ſay where the inaccuracy was. It conſiſted

mainly in the want of the *entaſis* (as they call it in Grecian pillars) or ſwell in the outline; which ought not to taper uniformly, or ſo that a ſtraight edge would juſt touch all the ſet-offs or canopies of the buttreſſes, but ſo as to give a ſlightly convex outline, tapering more rapidly towards the top. If you want to ſee this in an exaggerated form, look once more at the great Durham tower, which has been rightly ſaid to look like a barrel in ſome points of view. There was alſo a ſet-off in the walls, as well as ſeveral in the buttreſſes, ſo that there would ſtill have been a viſible ſwell in the tower if it had had no buttreſſes. I do not mean that the exiſtence of this was at all peculiar to Doncaſter and Durham, for all the beſt towers have it; but that the degree of it was ſuch as to produce a better effect in this tower, whether ſeen flatwiſe or anglewiſe, than in any other of the ſame claſs. The moſt queſtionable features in it were the finials of the buttreſs canopies, which (perhaps more from the alteration of their ſhape through the decay of the ſtone than from their original form) had rather too near an approximation to the appearance of hatpegs. The ſixteen blank ſhields too, round the top, juſt under the cornice, are certainly not a device diſplaying great fertility of invention, and I think they may very well be replaced by ſomething more in accordance with the decoration of the body of the church and more lively; and as each ſide of the new tower will be four feet wider than the old one, ſomething more will certainly be required to prevent it from looking diſagreeably plain. The top of a building ought not to look as if the builders had barely managed to afford the money to erect it, and were obliged to ſtarve it of its intended decoration before they reached the top.

On the whole therefore, although this Doncaſter tower was Perpendicular, I have no heſitation in pronouncing it to have been decidedly the beſt Perpendicular tower in England. The weſtern towers of York and Beverley, though a good deal higher, are only one window in width, and in everything except the height are decidedly inferior to this. The monotonouſneſs and ſtiffneſs and want of diſtinct horizontal diviſions, which it ſeems the Perpendicular advocates think the great beauty of Canterbury, I venture to call a great defect. The tower of Trinity Church, Hull, is altogether inferior to this, though the general arrangement is much the ſame; it has neither the ſame depth nor ſpread of the upper windows, nor the ſame elegance of outline. Of Hedon, the neareſt to this in form, I have already ſpoken. Durham and its ſiſter Howden are ſpoilt by their tops, and Durham by its undue protuberance alſo. The windows of Glouceſter are contemptible, and its pinnacles, like Taunton, in the worſt ſtyle of late Perpendicular. The windows of Magdalene College tower are poor and few, and all the lower ſtories are extremely plain, though the top with its four turret ſpires is beautiful. St. Neot's is a maſs of Perpendicular panelling much like Glouceſter, only with much better windows. Boſton is not improved, but rather ſpoilt, by the lantern or 'ſtump,' to which it owes about fifty feet of its vaſt height. Neither the central towers of York nor of Wells have more than one ſtory above the roofs, which I agree with Mr. Freeman that a central tower ſeems ſpecially to require; and therefore even York is relatively, as Wells is abſolutely alſo, lower than Doncaſter will be. Wrexham, though of great reputation, really ſeems to me to have hardly one good feature in it—narrow buttreſſes, ſmall win-

dows, without any depth, and very late and baſe Perpendicular ornament at the top. The tower of Worceſter has had a narrow and unlucky eſcape of being very good and not unlike this in character, but that again is ſpoilt by its top, and by the want of boldneſs in its windows, and if it were reduced to the ſize of ours its inferiority would be manifeſt, if it is not already. Theſe are the only large towers which I remember as having enough reſemblance to this to be capable of compariſon with it; and even of the towers earlier than Perpendicular I know of none, except Lincoln, with which the deſtroyed tower of Doncaſter need fear compariſon. I ſhall have to ſhow you in the next lecture how the dimenſions of that which we hope to build in its place came to be what they are; but I ſhall not think it neceſſary to give any further reaſons for retaining the form and features of the old one as far as poſſible, though we reject the Perpendicular ſtyle in the remainder of the church, where there was no ſuch reaſon for adhering to it.

St. George's Church, Doncaster, as being now rebuilt.

LECTURE V.

ON CHURCH RESTORATION,

AND PARTICULARLY OF ST. GEORGE'S CHURCH, DONCASTER.

HITHERTO we have been ſpeaking of church-building in general. But we muſt not forget that the original ſubject of theſe lectures was not ſo much that of building a new church as rebuilding an old one; and that again is a different thing from what is commonly called reſtoration; though the terms are too often confounded, and old buildings are ſaid to be 'reſtored,' when in fact they are juſt the contrary, being firſt intentionally deſtroyed, and then rebuilt in ſome ſtyle and manner which the architect intends to paſs either for a copy of the original or for ſomething better. Now I am not going to waſte your time and my own by engaging in the controverſies of the 'conſervative' and 'deſtructive' ſchools of church-reſtorers, or whatever other deſignations they may aſſume or affix upon each other. Mr. Ruſkin is for reſtoring nothing: he ſays, you may keep your buildings from falling as long as you can, whether in actual or approximate ruin; but no hammer muſt be heard upon the

walls, nor muſt the ſtones once carved ever be touched again with any inſtrument but that of time. That may be regarded, and I think diſmiſſed, as the poetical view of the caſe, which might be very fit to be adopted as the practical one if churches were only built to be looked at, and if there were no kind of difficulty in building freſh ones and abandoning the old as ſoon as they became inconveniently ruinous. The oppoſite, or deſtructive theory of reſtoration of courſe is advocated openly by nobody, though it is frequently practiſed, not only where it is inevitable, but recklefſly and without excuſe. Sometimes it is no eaſy matter to determine how the line is to be drawn between reſtoration by mortar or cement, and reſtoration by the hammer and chiſel. It is impoſſible to lay down any general rules for ſettling ſuch a queſtion, as it muſt depend on circumſtances varying in every poſſible degree, from ſuch a deſtruction as we have ſeen here up to the renewal of the decayed tracery of an old window, or the replacing of pinnacles blown over in a ſtorm. I can therefore do no more than give a few illuſtrations of the kind of reſtoration which have been or may be advantageouſly adopted under particular circumſtances, and eſpecially in caſes like this of Doncaſter.

It ſometimes happens that a very good reſtoration may be effected by the ſimple expedient of taking down the old ſtones carefully, and marking them, and building them up again with new mortar and new walling within. The old walls were very often made only of looſe rubble, and if the mortar has been bad (a very common thing both in new and old work) the inſide becomes rotten, or little better than duſt, and the aſhlar facing which contains it too thin and too looſe to be capable of holding together any longer. If

the ſurface is itſelf decayed, of courſe there is an end of the matter: it is no uſe talking of reſtoration when both ſurface and ſubſtance are departed. But if not, then the work may be reſtored whole as it was before, and better, becauſe ſounder inſide, by ſuch a taking down and rebuilding of the old ſtones as I have mentioned. I know an inſtance where a whole chapel was not only reſtored but removed in this way, becauſe where it ſtood it was a fatal impediment to a neceſſary enlargement of the church to which it was attached; and I believe Mr. Scott and Mr. Ferrey recommended that courſe to be adopted with the tower of St. Mary's, Taunton, which is in a dangerous ſtate, and is now ſurrounded with ſcaffolding. Another kind of reſtoration perfectly innocent, even in Mr. Ruſkin's eyes I ſhould think, is the bringing back of leaning walls to the perpendicular, by mechanical contrivances familiar enough to builders; as has been done with the nave walls of two celebrated churches not far from here, Howden and Workſop. Probably the grandeſt work of this kind that has ever been attempted was the raiſing of an entire tranſept of Beverley Minſter in the lump; the front of which had got to lean forward no leſs than ſixteen inches, from the ſinking of the foundations. I remember when I was a boy ſeeing the pictures hung up in a houſe at Beverley of the framework with which a maſon from York in the year 1730 (I think) raiſed the tranſept up again, and filled the gap with ſtone as far as he could and the reſt with melted lead.

But the caſes more particularly intereſting to *us* are thoſe where either a deſtructive reſtoration is the only practicable one, or where the deſtruction is already provided, and the

reſtoration muſt be a rebuilding of the whole or a ſubſtantial part of the church. And here again another queſtion may be involved, which cannot ariſe in the more ſimple caſes I alluded to juſt now: I mean the queſtion of ſtyle. I don't know that I can illuſtrate this better than by referring to the very complete reſtoration of Stafford Church a few years ago, a church of nearly the ſame ſize and general plan as this but of much leſs height, and which, like this, preſented a combination of very early and very late work mixed up together, ſo that it was impoſſible to call it either a Perpendicular or an Early Engliſh building. I find from a book of views of the reſtored church, with a deſcription architectural and hiſtorical, that there was a preliminary diſcuſſion between Mr. Petit (who lives near Stafford) and Mr. Scott, whether the parts which it was neceſſary to rebuild ſhould be done in the Early ſtyle as they had been originally, or in the late Perpendicular as they had appeared for two or three centuries. The reſt of the church, which did not require rebuilding, was Early Engliſh and Norman in the lower parts, with a late and bad Perpendicular clearſtory and aiſles, juſt as at Doncaſter; ſo that no poſſible ſtyle of reſtoration could make the whole uniform: not that I conſider that of much conſequence, as there is not a cathedral nor hardly a large church in the kingdom (except of courſe thoſe begun in Perpendicular times) which is built from top to bottom and end to end in any one ſtyle; and all the pure Gothic ſtyles harmonize very well together, though the leaſt taint of Grecianiſm will ſpoil any of them directly. Beſides that general advocacy of the Perpendicular as the beſt and moſt perfect and moſt peculiarly Engliſh ſtyle, which I have already noticed, Mr. Petit urged, as he would

have done here, that nobody could have any recollection or idea of the decayed parts of the church except as Perpendicular, and that therefore on the ground of old aſſociations that ſtyle ought to have the preference. However Mr. Scott and the Early Engliſh ſtyle prevailed; and in my opinion rightly, becauſe the Early Engliſh ſtyle is a much better ſtyle than the late Perpendicular, and becauſe it made the whole church tolerably uniform, except the parts which ſpeak for themſelves as late and inferior additions. If the ſubſtance of the church at Stafford had been Geometrical, or even Flowing Decorated (unleſs of the worſt kind), the caſe would have been ſtill ſtronger for rejecting the Perpendicular.

It is no anſwer to theſe arguments for reſtoring in an early ſtyle where circumſtances require or juſtify it, to ſay that the Gothic builders themſelves generally rebuilt or added in the ſtyle of their own period, without regard to what had been done before. For you muſt remember that all that time they thought, and thought rightly, up to the period when architecture began to decline, that each ſucceſſive ſtyle was an improvement on what had gone before. We have nothing of the kind to ſay; for we have no ſtyle of our own, and have only to conſider in which of four or five languages, all equally dead, all beautiful in their way, but not all equally beautiful or equally appropriate in all caſes, we ſhall write our inſcription, '*Si monumentum requiris circumſpice*,' on the ſtones with which we build. But on this point, as on the queſtion of reſtoration or rebuilding, it is evident that no general rule can be given, and each caſe muſt be determined by its own circumſtances. I ſhould never think of ſeizing the opportunity of a neceſſary

reſtoration (unleſs the building either was entirely deſtroyed, or muſt be ſo before it could be rebuilt) to change the ſtyle, even from the worſt to the beſt. But where nothing ſhort of a complete rebuilding will do, I conſider the queſtion of ſtyle as open as every other, always however leaning to the diſpoſition to preſerve as far as poſſible the leading features and character by which the old church had been known for ages, ſo far as they were at all worth preſerving.

The practice of many architects, though of courſe not of the beſt, ſeems to be juſt the contrary. So long as the public believed that 'Gothic architecture was obſolete' there was ſome excuſe for it; and much as we may wiſh the man had been hung on his own ſcaffold as an example, we can hardly wonder at an architect having been allowed to take the opportunity of the tower of the old St. Chad's Church at Shrewſbury having fallen, to demoliſh the whole and build in its place a kind of circus in the Claſſical ſtyle, with a round tower by the ſide of it (as it has been happily ſaid) like nothing in the world but a pork pie and a muſtard pot. But now they ought to know better; and yet how often do you ſee that 'the reſtoration of the church' has been made the excuſe for an architect, or ſometimes for his employers, to expatiate in ſome modern prettineſs of their own; changing a broad old low tower into a pinched-up ſpire ſet upon a low and mean pedeſtal after the modern idea of ſpire building; or ſtuffing ſmall windows full of a quantity of thin tracery like ironfounders' Gothic, in the hope that they may thereby paſs for large ones; and making roofs with deal rafters of half the ſize and half the number of the old oak ones, and ſmoothed and varniſhed like a dining-room table, inſtead of being left rough from the axe, with a few

bold bits of carving about them, which would take much leſs time than all the planing and 'finiſhing,' but would require more brains, and therefore is not to be thought of.

Even if the plan of an old church which has to be rebuilt happens to be ſuch that it cannot be retained without ſerious inconvenience, there is almoſt ſure to be ſomething in it which has long been regarded as a leading feature, by which it has been diſtinguiſhed from other churches, eſpecially if it is a large one. For it is one of the many excellences of Gothic architecture, that hardly any two large buildings can be found which have not many eſſential differences from each other; whereas a picture of one Greek temple is very nearly a picture of all. And if you cannot conveniently keep anything elſe in your rebuilding, at any rate this leading feature or character ought to be kept, if poſſible. Above all, the general form and pattern of the church ought to be retained, unleſs there is ſomething remarkably inconvenient in it. Every church cannot be of the beſt form, even if we were all agreed what is the beſt, unleſs you mean to abandon the idea of variety altogether, and build all churches of the ſame ſize according to the ſame pattern. There is hardly any form of a really old church which may not be made convenient enough if it is only made large enough. And there is nothing which people have more to learn in building, than that ſuperfluity, or redundance, of ſpace may be juſt as much an element of architectural effect, and is juſt as legitimate a mode of obtaining it, as ſuperfluity of height or of any other ornamental addition to the plain walls and roof; beyond which everything is, in one ſenſe, ſuperfluous.

Indeed I think it is not ſufficiently remembered that in

all caſes the preſervation of the form of any old building or part of a building is a more real and a more effectual *reſtoration* than the mere preſervation of the materials when the form is gone. Of courſe I intend this remark for mankind in general, and not for antiquarians, to whom I know very well that a ruin with every ſtone defaced, and not a ſingle feature looking as it did when it was perfect, would be infinitely more acceptable than the very image of the old thing exactly as it was when it was young, ſuppoſing it could be reproduced by magic out of new materials in a ſingle night. I know alſo that our modern attempts at reproducing an exact image of the old thing are generally great failures. But they are at any rate not ſo great failures as our attempts at inventing new ones; and as I ſaid in the firſt lecture, ſo long as we are improving in our attempts at imitating old work, nobody has a right to ſay that it never can be done. We muſt either build an imitation of an old building, or invent ſomething elſe inſtead of it, when we have to rebuild at all. The preſervation and working again of the old ſtones, if they are defaced, is no reſtoration at all: and leaving them alone, if they are defaced, is only defacing them ſtill more by the help of time and weather. Cheſter Cathedral has had juſt as truly a new and *modern* face put on it by Time, which has cut off every bit of the old face, nearly an inch deep in many parts, as if it had been chopped off with an axe laſt week, or had new mouldings cut with a chiſel quite different from the old ones. Such a building can only be made old again by being made new in the old form; and can only be reſtored, in the true ſenſe of the word, i. e. made what it was before it periſhed, by removing the modern face which has been put on by Time, and re-

placing it by another like what the old one was: aſſuming that we have the men who can do the work; and if they can't do that, they will do any purely new work probably ſtill worſe. With all our defects of workmanſhip, the thing which can be preſerved more eaſily than any other in reſtoring an old building is its general form; and as that is the thing which naturally takes the largeſt hold of the recollections of the people who have looked at it for years, it clearly ought to be preſerved whenever it can be without ſome ſpecial inconvenience.

Not only is a decayed or ruined building moſt effectually reſtored by being rebuilt in the old form, and made what the old one was before it aſſumed its new and ruinous aſpect; but a reſtoration of the old form is often perfectly conſiſtent with an improvement of the old details, or at any rate of ſuch as had appeared to be the details for many years paſt. If the original ones had ſo far periſhed that it was a matter of difficulty and ſkill to make them out; or if early and good ones had been ſupplanted by late and bad; or if the form of the building had gradually become ſo much changed, between the time of its foundation and its completion, that the earlier details could not be repeated conſiſtently with the later form; then the beſt and trueſt reſtoration may preſerve the general form by which the building had long been known, without attempting to copy the details which were too early for the later form, or too late to be worth copying, but replacing them by others equally or more conſiſtent with that form, and equally or more beautiful.

Of courſe this, like all general rules, admits of a vaſt number of qualifications. For inſtance, if Scarborough Church was burnt down, nobody in his ſenſes would think

of rebuilding it in its preſent form, of a nave and aiſles and central tower and tranſepts, but no chancel, and a huge ſecond North aiſle inſtead of the chancel, which was deſtroyed by Oliver Cromwell. That is the caſe of a form, not architectural but accidental, and exceedingly ugly into the bargain. But without ſpending our time in conſidering the exceptions, which will always ſuggeſt themſelves readily enough to anybody who wants to make them, let us ſee how the general propoſitions I have been ſtating, not only in this but in the preceding lectures, will apply to the actual caſe which we had to conſider here at Doncaſter. The deſtruction of this church was ſo complete that it was ſeen at once that whether the new church was to be rebuilt on the very foundations and in the image of the old one, or on a totally different plan, it muſt be equally new as a building. And yet you remember how little favour the propoſition met with, though it was ſtrongly advocated by the few who did advocate it, to deviate materially from the original plan, and from the characteriſtic features of the old church. It was ſoon perceived that the original plan might be adhered to, and the leading features of the church preſerved without any real inconvenience; ſo that Doncaſter Church might be ſtill deſcribed as it was before, as a church with tranſepts and a central tower, and a chancel about half the length of the nave, having aiſles to the nave and ſide chapels to the chancel, and a large porch with a chamber over it on the South aiſle, and four large principal windows, and a nave clearſtory of twice as many windows as the bays or arches below * and the chancel clearſtory with the ſame number as the ſmaller bays below, and above all with a

* In the old church there was one leſs; but only becauſe the win-

tower of the ſame form as before; and yet the whole made large enough for the congregation without reſorting to galleries, which will ſpoil any church, and high enough for the proper proportions, and with the high roofs reſtored as in the ſtill older and more perfect church, the marks of which were ſtill conſpicuous on the ſides of the tower.

It required no argument to convince, not merely thoſe who have to uſe the new church, but the neighbourhood and the public who were aſked to join in reſtoring it, as a work of national intereſt and importance, unique in its way, and inferior to no other building of its kind, that this was the proper kind of reſtoration, and the true *via media* between the two extremes of inſiſting on 'the whole church 'and nothing but the church' as it was before, with many defects and incongruities, and of inſufficient ſize, and the other, of effacing all recollection of its plan, and form, and characteriſtics by building ſomething of a totally different form and aſpect, on the ground that it would coſt leſs money than the preſent mode of reſtoration. And hence it was that when the town and the ſubſcribers were called together under the preſidency of the archbiſhop to determine how the work ſhould be done, they reſolved unanimouſly that the reſtoration ought to be ſuch as would 'preſerve the lead-'ing features and characteriſtics of the old church, eſpeci-'ally the central tower, with ſuch improvements in matters 'of detail as might be recommended by the architect;' and appointed a committee—not a large one, to ſpend their time in fighting among themſelves which party was to get the majority on every queſtion that would have to be diſcuſſed,

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dow which would have been next the tower was omitted to ſtrengthen the wall.

but a ſmall executive committee to do the thing the public wanted and ſubſcribed for, as well as they could.

The next ſtep was to aſcertain (and that was rather the buſineſs of the architect than of the committee) how the character of the old church was to be preſerved, and at the ſame time the defects and incongruities got rid of, which had ariſen from the mixture of the original Early Engliſh framework of the church and the Early Perpendicular tower, with the late and bad Perpendicular work in the aiſles and clearſtory and ſome other parts. If the Early Engliſh ſtyle had been adopted, the leading features and character of the old church, as it had appeared for three centuries, could not have been preſerved, on account of the fundamental difference between the ſmall windows of the two firſt Gothic ſtyles and the large ones of the Geometrical and later ſtyles; and ſo that was at once excluded, by the reſolution under which the committee were to act, as much as if it had been excluded by name. Then were we bound to adopt the Perpendicular ſtyle? It was not declared that we were. The word 'ſtyle' did not appear in the reſolution; and if it had, it would have meant one thing for the outſide and another for the inſide, one thing for the pillars and arches and another for all the work above them, as you know from that paper of Mr. Scott's upon the ruins of the old church which I referred to in the ſecond lecture, and may ſee ſtill more clearly from the illuſtrations in Mr. Jackſon's book. It was poſſible to preſerve all thoſe leading characteriſtics of the old church, which I mentioned a little while ago, together with any one of the three ſtyles which admit large windows of many lights. Then why ſhould we not adopt the beſt of the three? No anſwer, as far as

I can ſee, can be given to that queſtion; and accordingly the beſt of the three was adopted. Yet you muſt not ſuppoſe, as ſome perſons have done, that becauſe Mr. Scott had written a book containing the opinion that the Geometrical ſtyle is the beſt, he immediately determined not to miſs ſo grand an occaſion for diſplaying its capabilities. On the contrary, he at firſt ſuppoſed that it was a matter of courſe that the new church muſt be Perpendicular; and I believe he would not have ventured to change the very conſpicuous Perpendicular features of the old church into the Geometrical in the new, if he had not been told that all definition of the ſtyle was intentionally omitted from the reſolution under which he had to act, for the expreſs purpoſe of leaving it an open queſtion, and perhaps I may ſay farther—of inviting the architect to adopt a better and purer ſtyle than the Perpendicular, and a more complete and developed ſtyle than the Early Engliſh. If anybody is ſhocked at the tranſmutation, I am very willing to take the blame of it, and ſhall only defend myſelf by appealing to the walls now riſing, and aſking whether you do not recognize already the form and the leading features and character of the old church, and whether the Geometrical windows and arches and decorations of the new church appear to you to be inferior or ſuperior to the correſponding features in the old.

Having ſhortly alluded to the leading points of reſemblance between this new church and its predeceſſor, let us now examine the points of difference between them; and if I am not very much miſtaken, you will be ſatisfied that in every inſtance of ſuch deviation the advantage is in favour of the new building: a bold thing to ſay, and one that can

very ſeldom be ſaid of any great reſtoration or alteration of an old church; but ſo far as we have gone yet, and in ſpite of ſome miſtakes, which I ſhall not ſpare, I am convinced that it is true.

Firſt then is that moſt obvious difference between bad Perpendicular windows (for moſt of them were very bad) and good Geometrical ones. I have already explained in the ſecond and third lectures what are eſſential conditions to the goodneſs of any Decorated window, and have alſo ſaid that I believe this is the firſt modern church in which thoſe conditions have been attended to; though even here not ſo uniformly as they ought to have been. I am the more confident that I am right in ſaying this, becauſe here alſo it was not at firſt intended to make the windows as they are, and I had ſome difficulty in convincing the architect that they ought to be altered—all of them in depth from the outſide, and in ſize of mullions, and thickneſs of tracery, and ſome of them in pattern alſo, and even in the number of lights. All the windows eaſt of the tranſepts, which I caught juſt as they were ſome of ſet out for the maſons, have been altered fundamentally from the original deſigns, and ſo has the North tranſept window; and I am not afraid to ſay that on the whole, and in ſpite of the defects in the South aiſle windows (which I did not ſee in time), the windows of this church will bear compariſon with thoſe of almoſt any old one in this which is the beſt ſtyle, and that the worſt window in this church is vaſtly ſuperior to the beſt of correſponding ſize or poſition in the old one.

Another point which is worth notice in the windows of the new church is their variety. In the old church we may almoſt ſay there was none; that is to ſay, all thoſe of

the ſame ſize and ſhape were of the ſame pattern, as they almoſt invariably are in Perpendicular churches. The only window in the whole church of which the pattern could be called good was the great Weſt window; and that need not be much regretted, as you may ſee juſt the ſame pattern at Bridlington on a larger ſcale, and very nearly the ſame at Beverley and ſeveral other churches in Yorkſhire, and I dare ſay elſewhere. But in either of the two Decorated ſtyles you may have almoſt any amount of variety in windows of the ſame ſize, although it is by no means the caſe that in old churches of that ſtyle there always was that variety. For inſtance, all the aiſle windows of the nave of York are of the ſame pattern; and ſo are the beautiful windows of the ſouth aiſle of Glouceſter; and ſo of Cologne and many other cathedrals and large churches. On the other hand, Merton College Chapel has four different Geometrical patterns diſtributed among the ſeven windows on each ſide of the choir; and the ſouth aiſle of Melroſe Abbey appears to have had all its eight windows of eight different patterns. Here we have kept between thoſe two extremes; no two adjacent windows, except in the tower, will have the ſame pattern; but beyond that, variation has not been introduced for the ſake of variation. Thus, there are only two patterns in the three ſouth chapel windows, and two in the north; and the ten windows of the nave clearſtory, which have only two lights, will merely have two patterns, not very different from each other, five times repeated alternately; and the firſt and fifth aiſle windows are the ſame (or very nearly), and the ſecond and fourth; on the ſouth ſide the porch occupies the place of the third, and on the north the third is a different pattern from the others on that ſide. At the

ſame time the patterns of the ſame ſet of windows, though varied in detail, are of the ſame kind or family, as they are in Merton Chapel, and as they clearly ought to be; thus the difference between all the ſouth windows and all the north windows, of the ſame number of lights reſpectively, is much greater and more ſubſtantial than between any two windows of the ſame number of lights and on the ſame ſide. The reſult is that there will be nearly thirty different patterns of windows of all ſizes, from one light up to eight, a greater variety I ſhould think, than could be found in any other church of the ſame or even greater ſize, except a few of the cathedrals.

I ſaid that there will be two patterns in the ten clearſtory windows on each ſide of the nave, repeated five times alternately. As there are two for each bay of the nave, it may ſeem to you, as it did to the architect at firſt, the more natural arrangement to make the pair over each bay alike; as they are at Howden, and in moſt of the clearſtories which have twice as many windows as there are bays below. Even when there is no variety of pattern, yet the windows are often grouped together in pairs by the buttreſſes or pinnacles or ſome other mode of diviſion. But I think this is a miſtake, at leaſt where you have ſo few bays as five; and as we are not bound to proclaim, as it were, by the arrangement of the clearſtory windows that there are no more than five bays in the nave, it ſeemed better to arrange them as ten independent windows, that is, with the patterns not repeated in pairs, but alternated. There is no pretence in this of having more bays than we really have, becauſe it is by no means a neceſſary preſumption that each bay of a church has only a ſingle clearſtory window

over it; in the chancel they have only one becauſe the bays are three feet ſmaller.

As five is rather a ſmall number of bays for a large church of this character, you may aſk why we have not made ſix, as at Howden, Beverley, and many other churches not at all ſuperior to this, even if we made them rather ſmaller than the preſent ones, ſo as to give a nave about a hundred feet long inſtead of ninety. I can only anſwer that I know of no reaſon, except that it would have increaſed the coſt conſiderably; and as the archbiſhop had expreſſed a ſtrong opinion againſt the propoſal to make the church capable of holding as many as 1500 people (the only point on which at firſt all parties had been agreed), and the plans had to be ſubmitted to him, I ſuppoſe Mr. Scott felt that he could give no reaſon likely to be approved, for incurring that additional expenſe; and therefore he never propoſed it to the committee. It would in that caſe have been neceſſary to increaſe the length of the chancel and tranſepts alſo, with the view of preſerving, or rather recovering the original proportions as far as poſſible; for even now the length has not been increaſed in proportion to the width, as you may ſee by comparing the ground plans of the *early* and the new churches; all which conſiderations were not to be overlooked with reference to the queſtion of expenſe, although that very increaſe, eſpecially in the tranſepts, would have ſtill further improved the architectural effect. Nevertheleſs I think it was a miſtake. I alſo venture to think that, although the maxim enunciated by the archbiſhop, that no church need be made to hold more than 1000 people, is perfectly true in general, it does not apply to a kind of metropolitan church in which an occaſional attendance may be expected

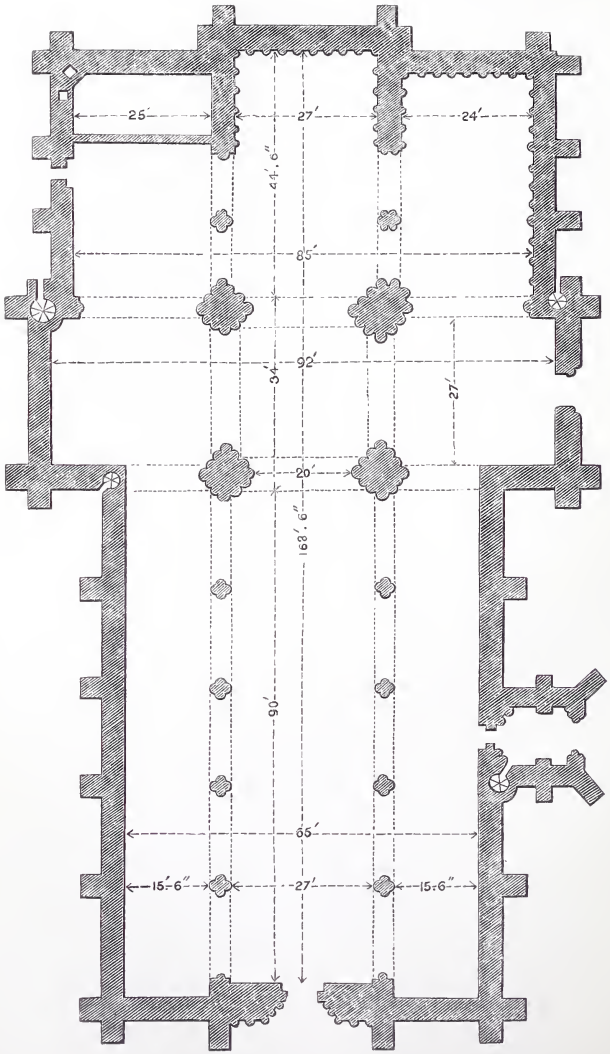
conſiderably beyond the ordinary Sunday congregation. I underſtand that as many as 1800 people were ſometimes preſent in the old church; and it is not at all likely that the occaſional congregations will be leſs in the new one, whether you regard the character of the church or the increaſed and increaſing population of the town and neighbourhood. If I had known at firſt as much as I have learnt ſince, either of the ſize of the congregation here on ſpecial occaſions, or of the far greater ſize of other pariſh churches where the ſervice can be heard all over, I ſhould certainly have advocated adhering to the original propoſal (which was none of mine) that this church ſhould be built for at leaſt 1500 people. Not to go farther than the three other principal towns on our Great Northern Railway, and omitting the two cities with their cathedrals, Newark and Grantham churches are both much larger than this, eſpecially in length, which is juſt what this church wants; and that of Boſton, which is ſomewhat larger than the great church of St. Michael's, Coventry, has an area of more than three times the ſize of this, and has lately been reſtored ſo as to make the whole available. Moreover none of theſe four churches have central towers; and in a church of that conſtruction you ought always to have a larger groſs area than with a weſtern tower, becauſe the middle of it is more occupied and obſtructed by the tower pillars, and the chancel more ſtrongly ſeparated from the nave thereby. Even in the ſmall town of Henley on Thames, with a population leſs than the ſingle pariſh of St. George's here, the church has lately been reſtored and enlarged to hold about 1400 people, and it was very nearly full on a Sunday when I was there lately, though there was no ſpecial reaſon for a larger congregation than uſual.

And beſides all this, it is a great miſtake to forget that a certain amount of redundance is no leſs an element of grandeur in ſpace than it is in decoration. The moment you ſet about building with a view to ſomething beyond mere utilitarianiſm, which has now been unanimouſly rejected by Churchmen and Diſſenters, by poor law guardians and metropolitan veſtries, inſurance offices, hoſpitals, Mancheſter warehouſemen, diffuſers of univerſal knowledge, and republics with univerſal ſuffrage, you immediately and inevitably proceed to exhibit redundance, or (as it is called in the language of Puritaniſm and Rationaliſm) *waſte* of labour, ſomewhere.* A large room, ſixteen or twenty feet high, properly ventilated, will do juſt as well as one of ſixty, for merely holding a given number of people. Every foot of vertical extenſion of the walls above the neceſſary height is juſt as redundant or ſuperfluous, except with a view to architectural effect, as every foot of longitudinal extenſion beyond the neceſſary ſize. Why is one to be admitted as unobjectionable and appropriate, and the other to be denounced as ſuperfluous and abſurd? Nay more, why is that one to be admitted which gives you ſpace that you can't uſe however much you want it, and the other to be rejected, which gives you the opportunity of uſing the ſpace whenever you require it, and adds to the grandeur of the building when you don't? My opinion therefore about the building of ſuch a church as this—I mean a church of firſt rate architectural character, and a kind of metropolitan

* I do not mean to object to 'Utilitarianiſm in Architecture:' on the contrary, I agree with Mr. Petit, that it is often not conſidered enough. But when it is the *only* thing conſidered, Architecture is no longer to be reckoned among the fine Arts.

church of the Deanery of Doncaſter—is, that it ought to have been made capable of holding a congregation about half as large again as the ordinary congregation of a well-attended church in a large town. And I ſay this now, although it is too late to correct the miſtake, becauſe I feel ſure the time will come when it will be ſaid that thoſe who built this church ought not to have ſtinted it of a few feet more of length in its two principal dimenſions, and ſacrificed both architectural effect and the probable wants of future congregations for the ſake of ſome not very large per-centage on the coſt of the whole, and in obedience to a maxim of by no means univerſal application.

At the ſame time I do not want to exaggerate the effect or amount of this miſtake. The church is fourteen feet longer internally and twenty-two externally than it was before, as you may ſee from the two ground-plans which are given here; and in available capacity it is a great deal larger; as everybody will ſee who remembers how much of the ſmaller area of the old church was rendered uſeleſs by the galleries and ſtaircaſes and glaſs ſcreens and other obſtructions, which were connected in one way or other with the gallery abomination, and have all been now diſpoſed of by the ſummary juriſdiction of the fire. The new church will hold about 1300 people with reaſonable convenience; and I ſuppoſe on great occaſions 200 or 250 more might be accommodated with a little contrivance, by putting ſeats in ſome parts of the church where nobody would ſit while there was room elſewhere. Moreover, the breadth of the nave proper, between the pillars I mean, is increaſed from twenty-three and a half to twenty-ſeven feet: thus leaving fewer people in the aiſles and thoſe leſs obſtructed by the



Ground Plan of the new Church at Doncaster.

Ord. St. Georges' Sec. p. 1.

pillars than in the old church, where the aiſles were larger and the pillars cloſer together both in the length and breadth of the church. And as one more excuſe for keeping to the old number of five bays and making them rather wider, inſtead of making ſix of the old ſize (which would have given us a nave nine feet longer), it may be remarked that the old church was in this reſpect identical with the ſtill earlier but ſmaller church of the thirteenth century, the pillars and nave-arches of the old church having been the original Early Engliſh ones; as you ſee in the ground-plan of the old and early churches, where the light ſhaded walls are the additions of the fifteenth or ſixteenth century, and the dark the original church of the thirteenth; and I have ſhown the ſhafts of the triforium arcade all round that early church, except in the chancel and ends of the tranſepts.

In fact there was much leſs ſcope for making arbitrary alterations in the dimenſions of the church than would be ſuppoſed by anybody who has not examined the matter carefully. Remember that the fundamental principle of the reſtoration was that the old form and proportions ſhould be preſerved as far as poſſible; I do not mean the proportions between the original and very perfect Early Engliſh nave, tranſepts, and chancel, and the Perpendicular additions which had been made two centuries afterwards, in order to get the additional ſpace that was wanted without pulling the whole of the early church to pieces; but the original proportions, adapting them to the propoſed new ſize. For inſtance, the Perpendicular aiſles had been made ſo wide as nearly to deſtroy all the effect of the tranſepts, except when you looked at them above the roofs of the aiſles. If you are to have a croſs church at all, of courſe

it ought to look like one throughout. Therefore even though the entire width of the nave and aiſles is not increaſed, but in fact diminiſhed by a foot (unneceſſarily as I think), it was eſſential to increaſe the length of the tranſepts, in order to make them ſhow as ſuch; and they would have been no doubt better, not merely for the reaſons I gave you juſt now, but alſo for holding the organ (which will fill the whole projection of the north tranſept), if they had been ſtill longer. The width of the náve proper is increaſed ſo as to reſtore the proper and uſual proportions between it and the aiſles, and the length increaſed, not quite in the ſame proportion, but as far as it could be without either increaſing the number of the arches, or their ſpan, and therefore their height, and therefore the height of the main walls, and of the roof, and of the tower, and in ſhort making the whole thing on a larger ſcale by thus enlarging the bones of the ſkeleton.

The tranſepts muſt be as wide as the nave, i. e. twenty-ſeven feet, becauſe otherwiſe the central tower would be not ſquare, but narrower one way than the other, as in Bath Abbey church (a late Perpendicular building) and ſome others, with a very bad effect in my opinion; none of the really good central towers avail themſelves of this miſerable device for looking wider than they ought; and a narrow tranſept in a large church, like that of the pariſh church at Leeds, is itſelf a poor and paltry looking thing; and there it is ſtill worſe, becauſe it is made the excuſe for getting off with a narrow tower at the ſide of the church inſtead of a broad one over the middle where the old tower was. Theſe dimenſions, of twenty-ſeven feet within the tranſepts and nave proper and ſixty-five feet for the nave and aiſles,

may appear to you nothing very conſiderable; and you may think that the entire width of the church might eaſily have been increaſed without any great increaſe of expenſe. But in fact they are large dimenſions. The width of the nave of Lichfield Cathedral is exactly the ſame; and ſo is Beverley minſter, which ranks architecturally with the cathedrals; and the gigantic nave of Bridlington Church, though longer than moſt of the cathedral naves, is only thirty feet wide, and with its aiſles is only ſixty-eight. Howden and Selby and St. Mary's, Beverley, and a multitude of other churches all conſiderably longer than this, are all ſeveral feet narrower. Moreover the nave proper could not have been made wider without ſtill further increaſing the ſize of the tower, which as it is will be four feet wider than the old one; nor the aiſles, without extending the tranſepts, and violating the uſual proportion between the nave and its aiſles in churches of this conſtruction.

This church differs from the three I mentioned juſt now and from various other croſs churches which might be mentioned, in the chancel being only about half the length of the nave, whereas in them it is of nearly the ſame length. It is worth conſidering whether this is to be regarded as a defect or not: as *primâ facie* one is inclined to fancy that it is, eſpecially with the example of the cathedrals before us, moſt of which have choirs not much ſhorter than their naves. But before we come to that concluſion, the firſt queſtion is how the chancel or choir, when it is a long one, is to be uſed together with the nave in a croſs church. At Howden the choir is in ruins; at Beverley it is not uſed with the nave; nor at Hull either, which is another croſs church with a long chancel: at Selby the choir alone is

uſed, as in a cathedral: at Newark, a very long church with tranſepts, though the tower is at the end, the chancel is only partially and inconveniently uſed: in the old Leeds church the chancel was only uſed, as at Beverley, for the adminiſtration of the communion: at Beverley minſter, as in the cathedrals, the nave is not uſed at all. Nor do I ſee how it would be poſſible to do otherwiſe in any of theſe caſes, or to uſe for ſervice at the ſame time the whole length of a choir eighty or ninety feet long and the ſub-tower ſpace and nave on the weſt of it. And ſo ſenſible were the very early Gothic builders of this, that in their times long chancels ſeem to have been extremely rare. Kirkſtall and Roche Abbeys, and Fountains, and ſundry other Norman and Early Engliſh Abbey churches, though much longer in their naves, had chancels very little and ſome not at all longer than this. Nay, even in the cathedrals, as Profeſſor Willis obſerves in his book on Canterbury Cathedral, before the end of the thirteenth century there were very few choirs built of more than three or four bays, while the naves have frequently as many as ten. Weſtminſter Abbey is to this day a ſtriking example of the ſame kind, the natural choir being ſo ſhort that they have been obliged to make an artificial one extending into the nave ſeveral bays beyond the tranſepts. The inconvenience of having ſo to deal with the tranſepts, which is very ſtriking there, may probably have been the reaſon for afterwards making the cathedral choirs large enough to hold the ordinary congregation, and retaining the nave only for architectural effect and occaſional congregations of larger numbers than uſual. But that reaſon clearly could not be applied to pariſh churches without making them large enough to be cathedrals and leaving the

naves uſeleſs; and ſo pariſh churches ſtill continued to be built with ſhort chancels, excepting ſome which have become pariſh churches from monaſtic ones, and perhaps a few others. Here the old proportions between the nave and chancel in the Early Engliſh church will be very nearly retained. So that neither on the ground of convenience, nor precedent, nor on the authority of the very church we are reſtoring, is there any reaſon for conſidering the ſhort chancel a miſtake.

The plan of the chapels on each ſide of the chancel is ſimply copied from thoſe in the old church: only Mr. Scott has taken care to let the projection of the tranſepts be more diſtinctly marked than it was before, on the eaſt ſide as well as on the weſt, though I think hardly yet enough. In fact theſe chapels had been extenſions of what was originally only an Eaſtern aiſle of the tranſepts with a lean-to roof juſt like the nave aiſles; as was explained in that paper of his about the ruins, which I have ſeveral times referred to; and hence it was that the chapels in the old church extended as far as the north and ſouth fronts of the tranſepts. The whole of this Eaſtern part of the church, forming a ſpace of about eighty-five feet by forty, will have an effect vaſtly ſuperior to the correſponding part of the whole church; not merely by reaſon of Mr. Forman's magnificent reſtoration of the South chapel which bears his name, but becauſe they will no longer be cut off from the reſt of the church and cut up into three diſtinct parts, by the ſcreens and partitions which had grown up in the old church. The Forman chapel will again be the Baptiſtery or chapel for the Font. Of courſe I know that the weſt end of the church is conſidered the orthodox

place for the font; but I think we ſhould be very unwiſe to give up the ſpace which will be more uſefully occupied by ſittings there, when we have the opportunity of placing the font not only in a far more convenient place, but alſo in a more dignified one, by allowing it to occupy a diſtinct chapel of its own, and that the moſt highly ornamented part of the church, and one which will be much better devoted to that purpoſe than filled with ſeats where very few people could either ſee the miniſter or hear the ſervice. I ſhall have a little more to ſay about the architectural details of this chapel preſently, after I have finiſhed the explanation of the manner in which the dimenſions of the church were fixed. The ground plan we have now diſpoſed of.

The height of the walls and roof may be conſidered to have fixed itſelf, in ſeveral ways. The bays of the nave being of a certain width required a certain height, for proportion, and for getting the proper pitch of the arches, which would have been ſpoilt if they had been lower than equilateral; and on the top of them, as cloſe as poſſible, and not with an ugly blank ſpace between, as when the Perpendicular builders blocked up half the Early Engliſh triforium, will come the clearſtory; which again muſt be of a certain height to contain the windows. For although nothing could be uglier than the old clearſtory windows, yet it was deſirable and poſſible to preſerve the old form and general effect of a large clearſtory with two good ſized independent windows over each bay of the nave, only reducing their ſize and increaſing the thickneſs of wall between them, juſt enough to get rid of the greenhouſe character of the old one. Or again you may ſay, that as the length of the church was increaſed, the height of the walls clearly

ought not to be diminiſhed; and thus in either of theſe ways the height of the aiſle and clearſtory walls would almoſt determine itſelf to be what it is, i. e. the top of the aiſle parapet thirty feet from the ground, and of the nave or clearſtory walls fifty-four; and that is the ſame all round, becauſe all the converging roofs of a croſs church ought to be of the ſame height, and therefore all the walls which carry them. If anybody is not convinced of this, I ſhall only aſk him to look at the exceptions, whether the few ancient or the many modern ones that he can find, and I think he will be ſatisfied. The chapel walls and roofs are however rather higher than the aiſles, as they very well may be, and had better be for the ſake of variety, eſpecially as they are wider. On the top of the main walls there comes the roof; and the height of that again is fixed by the pitch or ſlope of the original roof, which you may remember I ſaid that I had firſt conjectured and then found to be the angle formed by two adjacent radii of a pentagon; and thus the top of the roof will be ſeventy-three feet from the ground; or rather from the floor-line, which is the level the architects meaſure from, and therefore nearly ſeventy-five feet from the ground outſide the church, as the floor will no longer be ſunk below the ground but raiſed above it. The top of the roof of the Gordon Square Church, though narrower than this, is ſtated to be no leſs than ninety feet.

Then we come to the tower; and that even more definitely than the walls of the church fixes its own dimenſions. For the breadth being increaſed to fit the increaſed width of the nave tranſepts and chancel out of which it riſes, and the deſign being intended to be the ſame, of courſe

the height muſt be increaſed in the ſame proportion; and thus it will be raiſed from 140 feet to about 165, reckoning as uſual to the top of the pinnacles: which is fourteen feet higher than the celebrated tower of St. Mary's, Taunton, twenty-five higher than Howden, juſt a little higher than the central tower of Wells, and about 100 feet lower than Boſton and Lincoln; and the height is alſo very nearly the ſame as the internal length of the church, which is very unuſual with a tower, though not uncommon with a ſpire. But you ſee this great height is not the reſult of any vanity of building a tower higher than any other of its claſs, but is the neceſſary reſult of a few very ſimple rules which were adopted for the reſtoration, and chiefly of the determination to preſerve or reſtore its original form and deſign as it exiſted in the middle of the fifteenth century. And that you may not be too proud of this great tower when it is built, I will remind you that it would very nearly ſtand upright within the choir of Cologne; and that it would take about ſix of ſuch towers put together to make one equal in ſize to that of Mechlin, which is 350 feet high, and was intended to carry a ſpire nearly as high again.

Beſides this great increaſe in the ſize of the tower, we ſhall recover that moſt important internal feature of the old tower which its builders evidently never intended to be effaced as it was, perhaps inevitably, in comparatively modern times. I mean the lantern formed by the lower ſet of windows, of which I ſpoke in the laſt lecture. If the old tower had ſtood when the reſt of the church fell, it would have been as impoſſible to regain the lantern conſiſtently with ringing the bells as at Howden and Merton College chapel, in one of which the ringing is ſacrificed to

the lantern, and in the other the lantern is ſacrificed to the ringing, in the manner I explained before. But with the increaſed height which we ſhall now have, and the opportunity of making the tower walls ſtronger than before, we can arrange both the belfry and the bell-chamber conveniently enough in the fifty-five feet of ſpace that there will be between the top of the lantern windows and the roof of the tower. Indeed if the tower had not fallen, ſtrange as it may ſeem at firſt, it would have been almoſt impoſſible to effect any reſtoration of the church in the old form and proportions. For it was originally built as the central tower of the Early Engliſh church, and adapted to the height of the high pitched roof and low clearſtory of that early church, as you may ſee in the view given of the church in that ſtate in Mr. Jackſon's book. It never was really incorporated with the later Perpendicular clearſtory, nor ever could have been with any one of that height; and without a clearſtory of that height or ſomething near it, the church would have been too dark when made ſixty-five feet wide inſtead of the original fifty. Any attempt therefore to adapt a new church to the old tower (if it had remained) muſt have involved a total change of deſign, and a great departure from inſtead of adherence to 'the leading features and 'character of the old church.' And as I ſee no reaſon to doubt that the tower can be ſucceſsfully copied on the larger ſcale which will now be neceſſary, I cannot help thinking its deſtruction with the reſt of the church moſt fortunate in an architectural point of view.

Having now given you the reaſons for adopting the proportions, ſize, and ſtyle of the new church and its various parts, I muſt refer you for its external aſpect to the two

views of it which are given here and in the frontiſpiece. The latter is much the ſame as the original picture prepared by Mr. Scott, or his artiſt, only with the exaggerated perſpective of that picture reduced to ſuch a diſtant view of the whole church as can be taken by the eye at once. And inſtead of trying to ſhow the ſouth and weſt fronts together, I had this view taken more from the ſouth, and another for the expreſs purpoſe of ſhowing the weſt and one of the tranſepts, as you ſee; and probably there is no external view in which the new church will be ſo ſuperior to the old as this of the weſt front: towards which I hope that a ſtreet will ſome day be made from the ſouth-weſt corner of the churchyard.

The firſt thing that I will notice inſide the church is the height of the tower arches; which will be no leſs than fifty-ſix feet from the floor: of courſe this is mainly governed by the height of the clearſtory walls, and therefore this alſo was not an arbitrary height. The tower pillars are ten feet in diameter (more than twice the ſize of thoſe at Gordon Square which are intended to carry a ſpire), and are made in courſes of only two and four ſtones, and thoſe the hardeſt I ever ſaw, except granite. A very important experiment was made on this ſtone before the committee determined to uſe it for theſe and all the other pillars of the church. It was ſuppoſed by many people that the old tower fell becauſe the pillars were of limeſtone, which got calcined with the fire and water that was thrown upon it. Mr. Scott ſoon aſcertained that to be a miſtake, and that it fell, not becauſe the pillars were built of limeſtone, but becauſe they were not built of ſolid ſtone at all, but only of rubble caſed with ſtone, as was too often the caſe in old work; and ſo as ſoon as the

caſing was burnt, the rubble gave way like duſt, and the tower, as we may ſay, fell down like a man ſhot below his knees; for the parts above, and even the upper part of the piers themſelves, were good and ſolid. The unſolid piers of the original Early Engliſh tower had ſtrangely and fortunately been left for about fifteen feet, when they built the Perpendicular tower, apparently as a kind of intentional proviſion for ſecuring its fall whenever the church ſhould be burnt again, as it had been 220 years before. But beſides this diſcovery, we were told by the clerk of the works, juſt as we were on the point of determining, in deference to the general opinion about limeſtone, to guard againſt another fire by building the pillars of ſandſtone, that they would not be better but worſe, for that inſtead of waiting till they were calcined through, they would *blow up* after a few hours' firing. So we tried the experiment of keeping in the fire a large block of this limeſtone from Crookhill, near Coniſbrough Caſtle, and another, of what was repreſented to be the beſt ſandſtone, until one of them ſhould fall to pieces. In four hours the ſandſtone burſt into little bits; the limeſtone did not even crack for eighteen hours; and after being kept in the fire for three days more, water was thrown upon the three pieces into which the block had then cracked, and they did not fall into any more pieces, nor appear to be calcined for any ſenſible depth. So I think we may conſider the pillars of the new church fire proof, and the new tower much ſtronger than the old, on account of its greater ſtride at the bottom, the greater ſize of its piers, their greater ſolidity, and the very ſuperior quality of the ſtone, and therefore better calculated to ſtand the ſwing of the bells, under which the old tower uſed to ſhake rather

fearfully, and had latterly exhibited a very unpleaſant crack at its ſuppoſed junction with the walls of the clearſtory, where we found afterwards that it had never been really joined.

Mr. Scott has introduced another excellent proviſion for ſtrengthening the walls, or at leaſt for carrying the thruſt of the roofs (of which there is always ſome in roofs of this kind, however well they may be made) down to the external buttreſſes; by putting internal flying buttreſſes from the aiſle walls to the bottom of the clearſtory over every pillar. It would have been affectation to put them outſide the aiſle roofs, as they are in cathedrals and other churches where the nave roof is of ſtone, and requires ſome ſuch proviſion againſt the horizontal thruſt; for that would have looked like aſking people to believe that the roof is vaulted when it is not, and would therefore be condemnable as a ſham—a thing utterly abominable in all Gothic work; which never pretends to be better or grander than it is, and would rather leave people to find out, if they chooſe to look deep enough, that it is better than it pretends to be. Theſe flying buttreſſes will alſo be a great improvement to the internal view of the aiſle roofs, and in a long perſpective view from either of the chapels they will have ſomething of the effect of vaulting ribs. In old churches the aiſles were often vaulted with ſtone when the nave was not; for the lowneſs and narrowneſs of aiſles makes the vaulting much eaſier to balance than when it has to ſpan twice the width, and at nearly twice the height from the ground. There is however one place as high or higher than the nave roofs, that always can be vaulted ſafely; and that is the firſt floor of a central tower, where it is not to be open as a lantern. For inſtance, if the tower here had been too low to hold the

belfry and the bell-chamber above the top of the lower windows, then the lantern muſt have been given up, and the lower windows muſt have been the belfry windows, as they were before, though not originally: and then the proper thing to do would have been to vault the floor of that room with ſtone, the great ribs ſpringing from the corners, where the tops of the clearſtories meet the tower, and afford the requiſite abutment for ſupporting any weight of vaulting. Of courſe a hole muſt be made in the middle for taking up the bells; and it may be made an ornamental feature of the vault; for a ſtone ring or polygon will ſtand there, on the principle of the dome, which I explained in the firſt lecture.

Stone vaulting on diagonal ribs is ſuch an eſſentially Gothic feature, and ſo much more effective than anything that can be ſubſtituted for it, that I ſhould have been ſorry if we had been altogether deprived of it here. It would have been too expenſive, and would have required too large pillars to introduce it even in the aiſles; but as the porch was vaulted in the old Perpendicular church, and involves no great expenſe, that was at once adopted as part of the new plan. And when Mr. Forman undertook, not merely to rebuild the chapel in which his anceſtors are buried, but to build it in the beſt ſtyle that the architect could deviſe, I ſuggeſted the vaulting of the roof, as well as the arcading of the walls, as the moſt effective and ſubſtantial mode of improving its architecture. In the ground plan of the new church you will ſee an odd-ſhaped pillar between that chapel and the chancel; and this is the explanation of it. Vaulting, as everybody knows, produces a great horizontal thruſt, and therefore requires either a great depth of but-

treſs outſide and of pillar inſide the church, to carry the thruſt down to the ground, or elſe a very great load on the top of the ſaid buttreſſes and pillars to balance it. Moreover, as the North chapel is not vaulted, there will be no ſuch horizontal preſſure againſt the correſponding pillar on that ſide; and therefore the two pillars ought to be, and to ſhow that they are, different in ſtrength in the north and ſouth direction; but not in the eaſt and weſt, becauſe there they have juſt the ſame work to do, and that is none at all, except merely bearing the vertical preſſure of the wall above them. It appeared to me that the right way to meet this caſe was, to make the ſouth pillar a kind of double one, or five feet thick from north to ſouth, while it is only three feet, like the reſt, from eaſt to weſt; and Mr. Scott agreed with me. After this had been done I found that juſt the ſame caſe had occurred in St. Mary's, Beverley; for there alſo three bays of one aiſle of the chancel are vaulted, while the oppoſite ones are not; and there the difficulty has been met by putting a kind of buttreſs to thoſe pillars projecting into the vaulted aiſle; which of courſe is the wrong ſide for mechanical effect, but it would have been too ugly on the other ſide; and ſome of the vaulting ribs ſpring from the pillar, and ſome from this appendage to it, and they croſs each other in a confuſed and unſatisfactory way, as if they did not know exactly which was their proper origin. In this inſtance I venture to think that the new way is better than the old, if it is new; for it is very unſafe to preſume that anything under the ſun is new, merely becauſe you do not happen to have ſeen it before. The South Eaſt tower pier is increaſed in the ſame way, not becauſe that was not ſtrong enough to carry half a dozen ſuch vaults,

but to prevent confuſion in the direction of the ribs; and the reſult is accidentally convenient, becauſe it increaſes the thickneſs of that pier to twelve feet in the direction in which the tower will be moſt affected by the ſwing of the bells: on which I ſhall have ſomething more to ſay in the next lecture.

I have been aſked why we have not built a triforium, or open gallery under the clearſtory windows and above the nave arches, as has been done in the Gordon Square church, which is on much the ſame plan as this, though in an earlier ſtyle. The anſwer is that you have no buſineſs to make a triforium, any more than flying buttreſſes, where the conſtruction of the church does not require it. A triforium implies either a real gallery over the aiſles or at any rate vaulted aiſles, becauſe it occupies the ſpace which there muſt be between the nave arches and the clearſtory, in order to correſpond to the ſpace between the internal ſtone roof of the aiſles (where they have one) and the external wooden roof. At Gordon Square, though it is a very beautiful feature in the church, the triforium is in one ſenſe a ſham; and the internal roof of the aiſles, which is of wood, is only a flat ceiling, while the external one ſlopes as uſual. And in our caſe it muſt be further remembered that if we had added a triforium in the ſame way, we muſt either have curtailed the clearſtory windows and ſo ſpoilt them, or lowered the nave arches, which would have been ſtill worſe, or raiſed the walls about ten feet higher, and therefore the tower alſo, which would then have appeared too high for the length of the church, unleſs all the principal dimenſions had been increaſed in proportion.

Still it may be aſked why we did not make a triforium

clearſtory, or a paſſage along the bottom of the windows and in the thickneſs of the wall, as at Selby and on the ſouth ſide of Bridlington, and as was the caſe in the Early church here (which triforium, by the bye, is very inadequately ſhown in the ſketch in Mr. Jackſon's book, and made to look only like a blank arcade, inſtead of a paſſage between the wall and the arches). It is in my opinion an amply ſufficient objection to that conſtruction, that it deſtroys all poſſibility of getting the proper external depth for the clearſtory windows. Thoſe are the very windows which I mentioned in the ſecond lecture as looking ſo ill at Selby; and ſo do the correſponding ones at Bridlington. Here on the contrary we ſhall get the glaſs of the clearſtory windows nearly two feet from the outſide of the wall, which is there three feet ſix inches thick; and this is of far more value in an architectural point of view than an internal paſſage along the windows, which would be of no uſe, and not much ornament, and would have increaſed the coſt materially.

In the old church there was a room over the porch, containing a ſmall theological library, which periſhed in the fire. Acting on the principle I have ſo often mentioned, of reſtoring all the old features as far as poſſible, the porch is rebuilt with a ſimilar room above it. There are many of the ſame kind, and they are undoubtedly a great architectural improvement to a porch externally; but I have been ſurpriſed to ſee how rarely they are made of any uſe, or even of any ornament to the inſide of the church. It occurred to me that this *parviſe* (as its technical name is), might be made occaſionally uſeful for ſittings, and always ornamental, by opening it completely to the church with three arches, which have double marble columns like a

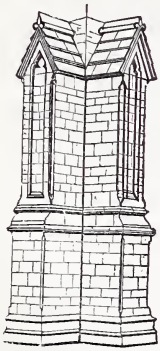
piece of a triforium. This has now been done, and the effect is ſo good that I do not heſitate to recommend it in other churches, where ſuch chambers are now lying uſeleſs, and there is nothing over the inner door of the porch but a dark ſpace of blank wall. The ſame thing is done, only on a ſmaller ſcale and with one arch inſtead of three, in St. Matthew's Church, at Leeds, which was built by Mr. Scott, after the pattern of the Temple Church, but without the Round. This porch is now ſo nearly finiſhed that we can judge of its effect ſufficiently. Except the Forman chapel, it is the moſt highly decorated part of the church, as the old porch was, for it was the only part that had a vaulted roof and niches with ſtatues in them. I know of no modern work equal to the new porch in its proportions, and in the depth and boldneſs of details, and in the general ſtyle of the decoration; and I think alſo that nobody who remembers the old one will deny, that it is an excellent ſpecimen of a reſtoration which effectually preſerves the leading features and character of the original while the details are materially improved.

Here therefore, that the praiſe and blame may come together, I will introduce the criticiſm I promiſed on ſome of the miſtakes which have been committed in the new building ſo far as it has yet gone. The fault of ſome of the windows I have noticed already. The next I have to mention is not very ſerious, but ſtill is worth mentioning becauſe it is one of that claſs which comprehends nine out of ten of modern architectural blunders, want of due proportion between details: and I ſhall attempt to point out the cauſe of it preſently. Few people I find go into the church without obſerving, what I ſaid they would obſerve

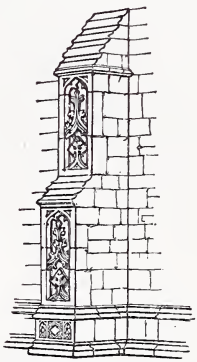
when I ſaw the firſt ſtone of the nave pillars laid on its foundations, that the ſecondary ſhafts are a great deal too ſmall: in fact they look rather like pipes laid in the hollows betweenthe principal ſhafts, than diſtinct ſhafts helping to ſupport the capital and the wall above. At firſt they were intended to be omitted altogether, as in the Howden pillars, and ſome that may be ſeen at page 158 of the laſt edition of Rickman. But in ſpite of thoſe authorities I think it is a very bad pattern, and eſpecially for a church where everything is on ſo large a ſcale as this; and Mr. Scott afterwards came to the ſame concluſion, and inſerted ſome ſhafts in the hollows; but they are ſtill ſo ſmall that they do not come up to the ſides of a ſquare ſection of the pillar. Thoſe in the chancel do; and I think nobody can ſee the two together, or even thoſe in the nave alone, without ſeeing that a good deal of labour has been ſpent there in cutting away ſtone which had much better have been left. The pillars at Gordon Square have juſt the oppoſite defect, viz. a want of diſtinctneſs in their form; which indeed is the prevailing fault of the mouldings there. At Doncaſter the different 'orders' in the arch mouldings are much better marked, and the tower pillars are I think as good as poſſible: no ſuch pillars have been built within the laſt four hundred years.

But on the outſide of the church there is a more ſerious and a leſs excuſable miſtake than this of the nave pillars. The baſes of the buttreſſes exhibited in the original picture of the new church are remarkably bold and rich, hardly inferior to thoſe at Bridlington (which you may find in Rickman if you have not ſeen the original). You can ſee this even in the ſmall drawing in the frontiſpiece, which is

taken from that picture of Mr. Scott's. But in the actual building all thoſe fine baſes have ſhrunk into nothing more than a ſingle ſmall ſet-off, or rather into ſomething leſs; for the actual baſe is more than covered by the drip moulding on the ſet-off immediately above it. In the original drawing too the ſet-offs higher up were made deep and bold, ſomething like thoſe in theſe two cuts of ſome old buttreſſes, of which the firſt is not unlike our corner ones. But theſe alſo in reality have had to be reduced, and in ſome of the



Bottiſham Church, Cambridgeſhire.



Lavenham Church, Suffolk.

moſt important buttreſſes reduced ſo much as to be very little more than ſham ſet-offs, with no real projection: which the eye firſt condemns involuntarily, and then detects as an impoſture. When it was found that they had been begun too ſhallow, the only way to make the beſt of a bad job would have been to change their character into ſtraight buttreſſes without any ſet-off at all in the ſmall ones, like thoſe at Bridlington (which however are of ample depth), and in the large ones, with fewer ſet-offs, and thoſe real

ones. I am ſorry to ſay I muſt pronounce nearly all of them very bad, except the great ones of the Weſt front, which the clerk of the works luckily obſerved in time ; and even theſe are leſs than thoſe of the Weſt front of Howden, which is in ſome reſpects inferior to this. And now let us ſee if we cannot find out the explanation of theſe miſtakes, and many ten times worſe, which may be ſeen in nearly all modern churches.

When an architect makes a picture of a church which he is engaged to build, he can ſee whether it looks ſomething like a Gothic building or not—ſuppoſing him of courſe not to be utterly ignorant of what he is about; and ſo he takes care not to let it go out for judgment until it does. But unfortunately, when it has been duly exhibited, and has ſatisfied thoſe who are intereſted in the matter that they are at laſt going to have ſomething really Gothic, it is ſuppoſed to have done its work, and is forthwith put aſide to make way for the ſtereotyped conventionalities of the architect's office. Windows, which in the exhibition picture had all the depth of a ſtrong ſhadow, becauſe they would have looked frightful if they had not, you find afterwards in the working plans ſtuck cloſe to the outſide, as if ſhadow was the thing above all others to be avoided in building Gothic windows. Mullions and tracery which looked like good ſolid ſtone in the perſpective, drop down into the uſual ſtick and whalebone ſtyle in the working drawings, becauſe the gentlemen who made them have never been in the habit of drawing any windows otherwiſe, and have never taken the trouble to meaſure the very examples which they buy to copy from. Nay, the working drawings themſelves are made as if the architect expected to be directed by inſpiration to hit upon the right proportions without even

taking the trouble to draw the whole of a thing at once, ſo as to get ſome faint idea of what it will look like in reality. I ſay a faint idea, becauſe I utterly deride the notion that any human being, whether writing the word Architect after his name or not, can do more than gueſs how anything will really look from that flat and ſhadowleſs image of an impoſſible reality, which is called in architectural ſlang an Elevation: and of courſe ſtill leſs from a Section, or a Ground plan; though theſe things are all neceſſary for the merely mechanical operations of the builder. But building is one thing, and deſigning for architectural effect is another.

And if a complete 'elevation' of a buttreſs or a turret can give only an imperfect idea of what it will look like when ſeen from a real point of view, and with real light and ſhade, what muſt an incomplete and partial elevation or ſection be worth? And what unheard-of genius muſt that man poſſeſs, or elſe what amazing folly and preſumption, who thinks that he can make a working drawing of one quarter of the thing to-day, and another the month after next, and the reſt next year, and make ſure that they will all exactly ſuit each other and produce a whole homogeneous and ſymmetrical. This habit of not making proper drawings—and none but drawings which ſhow everything in real perſpective can be proper ones—of every part of a building, is the main reaſon why one of the greateſt faults of modern building is the want of proportion between the different details and between them and the whole building. If the builders were themſelves architects, or deſigners, as they once were, it would be another thing. But now the drawings are everything: every moulding, and till lately every bit of carving, muſt be drawn for the men who have to execute it: beauties and blunders all have

to be copied with the ſame undiſcriminating exactneſs and 'ſervility.' And if ſome unprofeſſional ſpectator ventures to ſuggeſt an early doubt whether this pillar is not too thin, or that buttreſs is deep enough, it is ten to one that he will be told that he can't judge of the thing yet, but that it will all be right when it is done; and ſmall architects write letters to the newſpapers to complain that the reaſon why the works of modern builders give ſo little ſatisfaction is, that ignorant committees or employers are always interfering and inſiſting on their own caprices being adopted; and that if theſe 'meddling wiſeacres could only be deterred from 'attempting to control the educated and practical judg-'ment of the architect,' we ſhould ſoon ſee what modern taſte and ſcience can produce. I hope nobody will imagine that I mean any kind of alluſion herein to anything that has happened at Doncaſter Church. On the contrary, I think I ought to ſay, that ſo far from unprofeſſional ſuggeſtions having been reſented here, as the impoſtors of the profeſſion naturally think they ought to be, they have always been conſidered with attention, adopted whenever the architect was ſatisfied that they were worth adopting, ſometimes improved by modifications of his own, and whenever they have been rejected they have (we are all convinced) been rejected in the honeſt belief at any rate that they were inexpedient to adopt. But neither in Doncaſter Church, and ſtill leſs in others which have received leſs attention, can we ſhut our eyes to the fact that incurable miſtakes are conſtantly made becauſe the architect takes for granted that he can divine the effect of conſtructions which he has never ſeen before in ſtone or even on paper drawn as they will really look.

Of courſe I know that it would take a great deal more trouble, either to make perſpective drawings of everything, or not to let any new thing be completed—ſtill leſs multiplied half a dozen times over, or carried all round the building, until the architect himſelf has ſeen how it promiſes to look. I ſay *promiſes* to look, becauſe a thing that is going to look well always looks well from the beginning. You don't find the ruins of old churches ugly becauſe they are now imperfect. If the problem of modern architecture is how to get five per cent. upon a certain—or rather, the uncertain—ſum of money which is to be paid to a builder, with the leaſt poſſible trouble, no doubt the ſolution will be a very different one from that of the problem which the old builders thought they had to ſolve. Juſt imagine the architect of Lincoln Cathedral or St. Mary's Abbey ſending to ſome Grand or Provincial Maſter of Freemaſons to aſk whether he ought to be paid for adviſing that the roof ſhould have the old lead taken off and new put on, by charging five per cent. on the value of the new, or only on the amount of the plumber's contract as uſual, and receiving for anſwer, that when old materials are re-uſed the architect ought to charge a commiſſion on what their value was or would be when new, and that 'many architects' (one is glad to ſee at any rate not all) 'charge more than 'the ordinary commiſſion, *and with juſtice*, on alterations 'and repairs.' Poſſibly you may think all this has no more to do with architecture than the mode of taxing the attorney's coſts has to do with the verdict of the jury or the deciſion of the judge in a lawſuit. But it has a great deal to do with it. If an artiſt—and a real architect is an artiſt of the higheſt rank—is to be paid like a broker, it lays him

under a great temptation to act as a broker, and to treat architecture as if it were the trade of manufacturing plans, and as if he is the greateſt man in it who can ſell the greateſt number in the ſhorteſt time.

And as I have taken upon me to ſpeak of theſe things, I will go a little farther, and ſay here in print, what has often been ſaid by others out of print, that nothing tends more to keep down the eſtimation in which the architectural profeſſion is held by the public than this trading and auctioneer-like ſyſtem of paying them by a per centage on the builder's contract—or rather, what is worſe, on the contract and on all that he can get beſides for 'extras' and alterations. It is difficult enough for architects of the higheſt claſs to eſcape altogether from the odium which is reflected upon the whole fraternity from the too notorious practices of the loweſt claſs, in the form of contractor's 'bonuſes,' clandeſtine per centages on recommendations, and other complicated forms of bribery and corruption; and to theſe difficulties of their poſition there is added the reflection that the beſt and moſt upright architect cannot ſuggeſt the moſt neceſſary alteration, or the moſt obvious improvement of a building in progreſs, without expoſing himſelf to the remark that he has juſt the ſame intereſt in ſuggeſting alterations, as the upholſterer who aſſures you that your drawing-room curtains are getting very ſhabby, and that he has juſt received ſome beautiful new patterns from Paris. And beſides the odium of this ſtock-jobbing mode of payment, nothing can be more abſurd, whether you regard it as remuneration for labour, ſkill, or any one of the qualities which make one profeſſional man better than another. A railway company, or a warehouſing firm in the Borough, deſires an architect to ſend them a plan for

a great warehouſe, of which the only requiſites are that it ſhould be capacious, ſtrong, and ugly. The architect muſt be good for very little if he cannot make the plans of ſuch a building with a day's labour of his own, and three or four days of his clerks, at the outſide. And in ſubſequent ſuperintendence he need not ſpend two hours from the beginning of the work till the end; as there is a clerk of the works or ſome other kind of ſurveyor, paid by the company into the bargain, to ſee that the work is properly done according to the plans; for if you refuſe to employ ſuch a perſon, the architects will all tell you you are ſerved right if the builder cheats you: at ſo much do they really and truly eſtimate their own ſuperintendence, and the certificates which they themſelves give that the work is properly executed to entitle the builder to his payments. And yet for ſuch a work as this, the architect's remuneration on the five per cent. ſyſtem is exactly the ſame as for deſigning a church, or a houſe, or a highly decorated public building, which coſts the ſame money, but involves fifty times the trouble and a thouſand times the genius on the part of the architect, if it is to be done well.*

And when we ſee the newſpaper which is appealed to as the authority for ſettling queſtions of profeſſional etiquette, anſwering its queſtions in the way I alluded to juſt now, and telling them that they may—'and with juſtice'—refuſe to be content with the ordinary mode of calculating their per centage when it would work out at an unpleaſantly low figure, they need not be ſurpriſed if the public take hold of the other end of the ſtick, and ſay, that if the rule is not to

* It appears from a late parliamentary paper that the government offices uſually get architects to work for them at three per cent. not five: ſo that the architects are not as the Medes and Perſians after all.

hold when it will not give enough, it is time to put a ſtop to it where it obviouſly gives too much. Thus it comes to paſs that builders who act as 'general practitioners,' making their own plans, are already ſupplanting the 'regular 'practitioners' from the Royal Inſtitute of Architects, for works which aim at no great amount of architectural pretenſion: thus too have come architectural competitions for prizes of £100 or leſs to be given for deſigns and working drawings of buildings worth £20,000 or more, which cunning Town Councils thereby get poſſeſſion of for next to nothing, and then employ the fortunate candidate or not as they pleaſe, and get the benefit of ſeeing all the other plans and taking from them as much as is convenient for abſolutely nothing. In ſhort I am rather inclined to think that there is ſome ground for the occaſional lamentations in 'the 'Builder' over the apparently wide-ſpread conſpiracy of mankind againſt the juſt rights of the profeſſion. They are not likely to accept any ſuggeſtion from me on the beſt way of ſetting to work to defeat the conſpiracy, neither is it any buſineſs of mine to invent one. I will therefore only add that ſome day or other perhaps architects will find out that thoſe of them who deſerve it can achieve both fame and money, by charging for their ſervices with ſome reaſonable degree of reference to the character of the work they undertake, the time they mean to devote to it, and their own exiſting reputation: meaſuring all theſe things of courſe, by no rule to be ſtated in decimals (like ·05 on a building contract), but juſt as Millais fixes his price beforehand for a picture or Gibſon for a ſtatue, or as the Attorney-general's clients willingly give him a larger fee upon a ſingle brief than many a 'barriſter of five years' ſtanding' gets for a whole year's pleading.

As I have ſpoken about payment for alterations and 'extras,' and as there is no ſuch thing as building without any, I take the opportunity of giving a caution to everybody who has to make a building contract, not merely to provide (as people have learnt to do at laſt) that alterations ſhall not annul the contract, but that no alteration is to be paid for as an addition unleſs the builder requires ſome definite payment for it before he begins it, which, in caſe it is thought too much, is to be referred to the architect to ſettle, nor unleſs an order ſhall be given by the employer to proceed with the alteration after ſuch value has been agreed upon or ſettled. There ſhould alſo be a proviſion that the value of ſuch alterations as may have made the work cheaper to execute ſhall be fixed by the architect and deducted from the ſum payable under the contract. And I adviſe everybody further to ſtipulate that he ſhall be well and truly furniſhed with a copy not only of all the drawings and ſpecifications, but of every 'bill of quantities' or other paper which is ſupplied to or laid before the builders to guide them in preparing their tenders. We were for a long time aſſured at Doncaſter that theſe latter documents were quite unintelligible to the uninitiated; and though they were lithographed we never did get them after all from the architect's office, though of courſe we pay for them, ſince every man who tenders muſt add to his eſtimated outlay on the work what he has to pay for 'taking out the quantities'—a very laborious and expenſive but neceſſary work in eſtimating for a large building. However one of our ſecretaries ſucceeded in getting them in another way, and when they were got they turned out to be very far from either unintelligible, or uſeleſs, but on the contrary elucidated ſome

things which were much more vague and unintelligible in the ſpecification itſelf.

You may naturally aſk if I cannot add to theſe precautions ſome effectual one for the caſes—a great deal too common, where, in ſpite of all apparent ſecurities of architects' certificates and the conſtant ſuperintendence of a clerk of the works at a ſalary twice as much as many a curate's, the building is evidently 'ſcamped' at every point, and the employer cheated as ſyſtematically and deliberately as if they ſaw the builder ſtealing £1000 out of his pocket and agreed that it was better to ſay nothing about it. But this is only one of the infinite variety of reſpectable frauds which the great commercial ſpirit of the nineteenth century pronounces it perfectly fair to try; inaſmuch as it 'makes 'things pleaſant' if it ſucceeds, and if it does not, why you can't be convicted of felony, and have only to try again. *Caveat emptor*, exclaims the man of trade (in perhaps his only bit of Latin) and forthwith ſands the ſugar, coppers the pickles, 'ſalts his invoices,'* and goes to church or Exeter Hall, feeling that he is a firſt rate ſpecimen of a 'moſt re-

* Leſt the unlearned reader ſhould waſte his time in ſpeculating how invoices can be *cured*, I beg to inform him that the proceſs is not a culinary but an arithmetical one, of much the ſame kind as that recommended by a certain unjuſt ſteward to his lord's debtors. The Lord Chief Baron of England lately ſhowed himſelf ſo ignorant of the laws of trade as to intimate the opinion that it ſavoured very ſtrongly of felony; but he was immediately corrected, not only by a commercial witneſs in the box who had been alluding to it, but by an equally candid juryman (I ſuppoſe in the 'ſalting' line himſelf) who informed his Lordſhip that it was 'quite uſual,' and that the purchaſer might meaſure the goods if he liked, and therefore had no buſineſs to complain.

‘ ſpectable man,’ and that he could any day get a hundred and fifty equally reſpectable men to go and ſwear it of him anywhere—ſo long as he takes care juſt to keep on the right ſide of Newgate. The only thing I can recommend is that perſons who want to have building done for them ſhould take the trouble to learn ſomething about it. No doubt you may have your work done *honeſtly* without your underſtanding it, unleſs two out of the three parties engaged are rogues ; but the chances are a thouſand to one againſt it being done as *well* where there is nobody on the ſpot who underſtands it as when there is ſomebody who does. Many a miſtake is begun and paſſed incurably which might have been ſtopped by half a dozen lines to the architect from anybody who obſerved it in time. Many an effect cannot be judged of by the beſt architect from the moſt careful drawings, which it does not require any architect to judge of and to condemn the moment it appears in ſtone. Moreover the man who is conſtantly watching the progreſs of one building in which he is ſpecially intereſted, is ſure (if he underſtands anything at all about it) to obſerve a multitude of ſmall matters of detail which cannot be expected to ruſh all at once, or at the proper time, into the head of an architect who ſees it for an hour or two in ſix months and comes to look for anything rather than miſtakes and omiſſions in his own plans.

As I want to finiſh all I have to ſay about maſonry in this lecture and leave the remaining one for other matters, I muſt ſay here what I promiſed in the ſecond on the ſubject of what is called ‘ finiſhing’ the ſtonework, on which I have formed a very ſtrong opinion, and ſucceeded to a

conſiderable extent in enforcing it with reference to the church now building here.

According to the invariable modern practice, if a church ſhould have the extraordinary good luck to eſcape all the ſtereotyped faults of conſtruction, ſtill there is a proceſs which attends it from its birth to its completion, or is at any rate ready to ſeize upon it the moment the laſt ſtone is laid, and which would ſpoil the fineſt building that ever was erected : I mean this operation of finiſhing, which I have already done my beſt to vilify on every occaſion when I have had to ſpeak of it, as indeed Mr. Ruſkin has done before me. The proceſs is in fact double : firſt, every ſingle ſtone is finiſhed, that is, chiſeled, filed, or 'dragged' to the moſt regular ſurface poſſible, after it is cut to the proper ſhape, and before it is laid ; and then ſecondly, the whole building is finiſhed after it is done by going over it all again, beginning from the top as they remove the ſcaffold, and ſhaving it as clean and ſmooth as the nature of the work allows. This is what the clerk of the works told me was to be done here, and ought to be done in all buildings of this character, though he was ſhocked to find it had been omitted by the old builders (not the modern reſtorers) of York Minſter, who had left their work diſgracefully rough, and mouldings untrue, and joints ſo uneven that you can ſee the face of every ſtone is in a different plane. And the contractor added with equally natural contempt, that thoſe old fellows could very ſeldom manage to make two oppoſite walls of exactly the ſame length. Mr. Ruſkin, with a rather different object, had remarked the ſame of the old fellows before, and has given a number of inſtances of the deviations of old walls from exact equilongitude and paralleliſm :

nay he has even taken the trouble to repreſent on paper, and I have no doubt with his uſual exactneſs in theſe matters, the wavineſs or irregularity of ſome of the old mouldings; and any good photograph (the beſt of all architectural drawing-maſters) will ſhow you that ſame diſtinctneſs and irregularity of every ſeparate ſtone in old Gothic buildings, both in ſhape and ſurface.

I hope that a great many clerks of the works and builders and ſecond rate architects are deſtined to be ſhocked in like manner when they ſee how the ſtonework is going to be left here. For I flatter myſelf that I have done for the finiſhing: not indeed quite to the extent it ought to be, for a great deal has to be done in the education of the workmen before you will get them to turn out mouldings ſufficiently correct in form without reſorting to ſome kind of drag or finiſhing tool to complete the ſhape; but to a great extent the final dreſſing of the work and ſcraping of the joints to a level is prohibited; Mr. Scott being now I think equally convinced with me of the folly of proceeding to undo the good effect which is already apparent from leaving the ſtones juſt as they were laid and without any dreſſing of the joints. The only exception to this is that the internal aſhlar will have to be ſcraped in order to clear it from a kind of thick white-waſh which has been put on to preſerve it from the weather until the roofs are on, as the inſide is made of the Brodſworth ſtone, of which the ſurface periſhes very ſoon when expoſed, though it will ſtand well enough when covered in.

I underſtand that the late Mr. Pugin had got ſo far as to prohibit the common practice of ſcraping over—that is, of ſcraping *off*, the face of all the external ſtonework the

laſt thing before the ſcaffolding is taken down, ſo as to make it all look as like ſmooth plaiſtering as poſſible, which the builders and the ignorant public are taught to think perfection; but the reaſon why he objected to it was only that he had found that after new ſtone is cut and expoſed to the air, as the builders ſay, it *feeds* the ſurface into a kind of hardneſs ſomething like what is called the ſcale of caſt iron, which is not ſupplied again if it is once ſcraped off. This alone would be a very good reaſon; but it is very far from the only, or the moſt important reaſon for not allowing the ſtones to be ſcraped, 'dreſſed' or 'dragged' after they are laid. An eſſential characteriſtic of all Gothic work, whether of ſtone, wood, or glaſs, is that peculiar inequality or unlevelneſs of ſurface which ariſes from a ſlight difference in the reflection from or refraction through the pieces which compoſe the ſurface. No two ſtones laid together will ever have their faces ſo exactly in the ſame plane as to reflect the light at exactly the ſame angle, unleſs extraordinary care is taken to ſpoil the work by reducing them to the ſame plane. No boards or beams in very old work were planed quite ſmooth, but every cut of the chiſel or axe or other tool with which they were dreſſed reflects in a different direction; and thoſe who do not know it may be told that the moſt delicate and perfect way that modern ſcience has diſcovered for obſerving very ſmall differences of inclination is by making them reflect a ſtrong light. You may ſee in a moment with a ſmall looking-glaſs how ſenſible the ſlighteſt angular motion can be thus made. And in like manner no piece of old window glaſs was ſo uniform in thickneſs and texture throughout—much leſs any two adjacent pieces, whether of coloured or white glaſs, as not

to refract the light through them unequally, and so produce what is usually called the *gem-like* and streaky appearance which the modern glass makers have long been trying to imitate, by various kinds of artificial streaking, specking, and *dirtification*.

Hence it is that, as Mr. Ruskin says, even old plain ashlar stone-work has a character of its own, which restorers are sure to destroy, either by making it too smooth or too rough. Everything now is exaggerated, as imitations of all kinds usually are. If your architect is professing to build with rough stones, it is ten to one that you will find the masons dressing them up into a roughness and prominence which no stone could possibly have by fair cutting, which this roughness pretends to represent; often spending more labour in making them thus unnaturally rough than would have sufficed to make them smooth enough for the best ashlar work. And then by way of set off to this, you will probably find the quoins or corner stones dressed as smooth as if they belonged to a Græco-Italian Town-hall. This heresy about the dressing of quoins is so inveterate that we had a very narrow escape from it in this church, where there was no shadow of pretence for making them different from the rest of the ashlar, either on account of the size or quality or facing of the stone. The ashlar is all faced by chopping with a tool much like the axe used for dressing millstones. We found after looking at a good many specimens which Mr. Scott had collected or had got executed, that this mode seemed most nearly to represent the old way of dressing stone of this kind. The marks are neither vertical (which is tolerable) nor horizontal (which is abominable), but diagonal; and special directions were given that it

ſhould not be done at any particular angle, but juſt as it might happen to come. But the modern maſon, with his 'ſtraight edges' and files and drags and levels, is not diſpoſed to give up quite ſo eaſily. In ſpite of all the orders and of frequent complaints, I have ſeldom gone on to the works without finding ſome ſtones that had evidently been lately worked, and ſome actually working, with a ſet of ſtraight lines drawn regularly acroſs them at a given angle, ſo that the chopping might after all approach as near as poſſible to the beloved but forbidden 'corduroy' of moſt modern Gothic, or to the chopping by machine, which would do it ſtill more regularly.

But you will ſay perhaps that mouldings cannot be chopped with an axe, and muſt have ſome chiſel marks upon them, and you may aſk if we have ſucceeded in avoiding corduroy work there. The mode of working mouldings depends a good deal upon the kind of ſtone uſed. In the ſtone from Steetly near Workſop, which is uſed almoſt excluſively outſide, and in the Ancaſter ſtone, of which a little is uſed for pieces of window tracery and mullions too large for the blocks that can be got from Steetly, and in the Brodſworth ſtone, the mouldings are all completed with a drag: I do not uſe the word 'finiſhed,' becauſe that means going over the work to put a particular kind of ſurface upon it after it is really completed, and that is juſt the thing I am ſo anxious to put down. Theſe ſtones are ſo worked with the drag becauſe it really ſeems to be the eaſieſt way of bringing ſtones of that nature to the proper ſhape, though I cannot ſay I like it for all that. On the other hand, the Crookhill ſtone, of which all the pillars are made, and a few other parts, would utterly defy any ſuch ſmall-tooth comb

as a drag: nothing under a chiſel with a heavy hammer will touch it. And again, ſome ſtone from Huddleſtone near Tadcaſter, of which a little was uſed before we got the Ancaſter, is too tough and cheeſe-like for dragging, and the mouldings in it are completed by ſhaving them with a chiſel, ſomething like wood-carving. The effect of that is very good, becauſe a chiſel run along in that way will always make a rather undulating ſurface, though ſmooth enough to the touch even to pleaſe the finger of a clerk of the works.

We had two difficulties to overcome in ſettling this point of working mouldings: firſt, to find out how we really wanted it to be done, and ſecondly, to get it done as we ordered. It was eaſy to ſee that the plan of what the men call 'combing' the mouldings directly acroſs with the drag, produced an effect far too prim and machine-like, and too like the common corduroy finiſhing of plane ſurfaces with a broad chiſel hammered *along* them, which of courſe leaves regular marks *acroſs;* and ſuch marks are always bad. I cannot ſay I am quite ſatisfied that the drag has any buſineſs to be uſed at all, but I am ſatisfied that if it is, it ſhould be uſed (as we may ſay) rather like a bruſh than a comb; that is to ſay, not ſtraight forward, nor in any particular direction, but juſt as may be neceſſary for completing the proper ſhape of the moulding and no more, and without thinking about the texture to be given to the ſurface. I have lately ſeen ſome real Norman arches which had been covered with plaiſter or whitewaſh for ſeveral centuries, ſo that the old tool marks are now diſtinctly viſible; and I obſerve that in not one of the multitude of mouldings of various forms in them, has the tool been allowed to make

the marks directly acroſs : generally they are oblique, ſometimes parallel to the direction of the moulding, but never acroſs. If they are worked in this way and not allowed to be touched with a tool after they are put together into an arch or window-jamb, they will be ſure to ſhow themſelves diſtinctly, and an arch will then truly appear to be compoſed of a number of different ſtones ; and it will look all the better if they happen to have a little variety of colour among them, as I am glad to ſee ſome of ours have already. Indeed the mortar has the effect of ſtaining the ſtone for a little diſtance from the joints, which produces anything but a bad effect ; though the ‘ finiſhers ’ would have done their beſt to efface it. The face alſo becomes harder near the joints, from the ſtone ‘ feeding itſelf ’ ſtill more from the mortar. This variegated or mottled effect in old ſtonework is very ſtriking in photographs, which will ſoon become the only tolerated, becauſe the only faithful pictures of old architecture.

It is curious how much more trouble is often taken to do things wrong than it would require to do them right. A few years ago nothing was conſidered fit for a building of any pretenſions but aſhlar rubbed ſmooth like a chimney-piece, and laid in large blocks which required machinery to lift them. After a time the architects contrived to ſee that the old arches which they were imitating had never been rubbed ſmooth, and were very ſeldom made of ſtones larger than a man could carry. Then came in the corduroy manufacture : for as they now diſcovered that the old work ſhowed chiſel or axe marks whenever they had not periſhed, they were determined that new work ſhould ſhow them ſtill more ſtrongly, and on the largeſt poſſible ſcale, and made

with the greateſt poſſible regularity, and on ſtrict Grecian principles, which one finds at the bottom of almoſt every bit of vulgarity and conventionality of modern architecture. Of late this kind of work too has begun to be laughed at and has had this nickname ſet upon it, which it cannot ſtand long; though it ſtill lingers among maſons and ſecond rate architects, and evidently intends to die hard. The men ſeem to do it as if they felt they were producing a grand effect, and will always tell you there is no other way of 'finiſhing' that they know of. Even when it is ſupplanted, it by no means follows that it gives way to any plain, ſtraightforward, and natural way of working of the ſtone, as if the man conſidered that it was finiſhed when it is done, i. e. when he has brought the ſtone to the proper ſhape, by whatever kind of chiſel or axe happens to ſuit that kind of ſtone beſt. You will often find them dreſſing the ſtones all round the edges with a kind of fine corduroy border juſt one breadth of the chiſel, and roughing the middle with an axe or pick or ſome other kind of tool, or working one half of the face with chiſel marks leaning one way and the other half the other way, like 'herring-boning.' Not long ago I found ſome people at work cutting three or four deepiſh channels along the face of the ſtones they were uſing for reſtoring a church, after they had been properly enough worked with diagonal chopping very like ours.

If you have the good luck to eſcape all this, there is ſtill one more chance of ſpoiling the work, eſpecially if it is rather rough maſonry, which not one builder in a hundred will miſs, unleſs you look very ſharp after him; and that is by 'tuck-pointing,' as they call it, i. e. making prominent joints in mortar, with the edges cut quite ſtraight and ſquare

as if the mortar was a ſtrip of narrow white tape ſtuck over the joints. The only ſatisfaction is that this kind of pointing generally ſplits off in a few years, eſpecially when the mortar is as bad as it generally is; and ſo after a ſcabby interval of tranſition the building may at laſt come to look nearly as it would if they had not taken ſo much extra trouble to make it eſſentially and completely un-Gothic. Fortunately for us the Warmſworth lime, near Doncaſter, is about the beſt in England for building, and of courſe we ſhall have no ſubſequent tuck-pointing. Whenever you ſee the joints in a building remain white after a few years, the mortar has been bad; frequently from the lime being of a kind too *rich* for building and not ſufficiently *hydraulic*, or capable of reſiſting wet; and oftener ſtill from its not having been properly mixed with ſharp enough ſand or with plenty of it. I believe that iron flag, or the ſcales which come off in hammering red hot iron, increaſes the ſtrength and durability of mortar immenſely and alſo gives it a dark colour. I only allude to theſe things, which will be better learnt from any book on mortars and cements, becauſe people generally ſeem to be quite ſatisfied if their mortar is made juſt as ſuits the contractor; and of courſe what ſuits him the beſt is to get the neareſt lime he can find, and ſtill more the neareſt ſand (as the carriage is a larger ingredient in its coſt) and to mix them in whatever way takes the leaſt trouble: it is no concern of his whether the mortar will ſtand or not; and conſidering what moſt modern buildings are like, it would be rather gratifying to know that they will not ſtand long. It muſt be confeſſed that in this matter of mortar making, the Gothic builders were very inferior to their Roman predeceſſors; and that, with their conſtant uſe of rubble in the

inſide of their walls, has enormouſly increaſed the number of ruins inſtead of ſound buildings which we now poſſeſs.

If you ever happen to ſee any drawings of cathedrals or other Gothic buildings made in the times when the Grecian or Claſſical ſtyle was thought the only one fit for a civilized nation, it muſt have ſtruck you that they look remarkably un-Gothic and unlike the originals. An old engraving of the preſent St. Paul's is very nearly as good as a modern one ; but an engraving of the ſame date profeſſing to repreſent the old Norman St. Paul's, you can ſee in a moment is a mere caricature ; and yet it probably gives juſt as accurate a view of the form and proportions of the old cathedral as the other picture does of Sir Chriſtopher Wren's cathedral. Where then is the difference ? ſimply in this : that the *finiſh* or ſurface of the Gothic church is repreſented not in the Gothic but the Grecian ſtyle, with all the ſtones of regular ſizes, and nice ſquare joints, and all ſhaded exactly the ſame way, and everything made to look as ſymmetrical (i. e. as alike on both ſides of the middle) as poſſible. This ſhows as plainly as anything can be, that (as Mr. Ruſkin ſays in his Lectures—though with ſome very illogical inferences from it,) architecture does not conſiſt in ' proportion,' according to a common piece of cant, but in the mode of ornamentation, uſing the word in the largeſt ſenſe, of everything beyond the mere conſtructional features of the building.

Even of modern architectural engravings the great majority have the ſame defect, though certainly in a much leſs degree. For inſtance all the pictures in the laſt edition of Rickman, and all in the Gloſſary of Architecture, and a multitude of leſs known books, are *much too well done*, to

repreſent anything like the effect of real Gothic work. In other words, everything is drawn as if it was modern Gothic and not old. Compare theſe with the pictures in Britton's Antiquities and Cathedrals, or in Mr. Ruſkin's books, or with what appear to me the moſt genuine Gothic pictures I ever ſaw—almoſt like the very ſtones themſelves ſeen through a diminiſhing glaſs—Mr. Bell's* drawings of ſome of the old ornaments and tombſtones of the Early Church here which are lithographed in Mr. Jackſon's book, and you will ſee the difference at once, and better than by any deſcription I can give you of it. To do the architects juſtice, they are beginning to underſtand the importance of giving a Gothic ſurface and ſhadows to the views they prepare of their intended churches: and thereby they bear unconſcious teſtimony to the faultineſs of their own mode of executing the things they ſo repreſent; for having thus exhibited a picture of a building with the ſame kind of ſurface and the ſame depth of ſhadows and boldneſs of details as an old church of the ſame ſize might have, they not only deviate from all this in the working plans, as I ſaid juſt now, but direct or allow the builders to execute what they have rightly drawn (for no further working drawings are wanted for the mere ſurface work) in a manner as un-Gothic as poſſible. I do not mean that they commit this abſurdity with malice prepenſe; but merely that all building having long ago been conventionalized on Renaiſſance principles, it has been 'let to go on' as everything is in England until

* The Rev. James Bell, Vicar of Meole Brace, near Shrewſbury, who was curate of Doncaſter at the time of the fire, and to whom I am indebted for many ideas which I have expreſſed in my own way in theſe pages.

people are kicked into mending it. I will however end this lecture with the conſoling remark that all the teſtimony I have met with ſeems to agree in this, that the modern reſtorations in France are vaſtly inferior to ours in all real Gothic characteriſtics. I was ſure it muſt be ſo when I read of ‘ reſtorations of French churches being effected with ‘ mathematical preciſion ;’ for I know well enough what that means. A ſhort time ago a clever country workman aſked me to give him a mathematical rule for drawing ſome ornaments which he was in the habit of carving on organ caſes. I ſaid, ‘ how do you do them now ?’ ‘ By my ‘ eye.’ ‘ Very well, then go on doing them by your eye, ‘ and if you want to make them good for nothing do them ‘ with compaſſes.’ I dare ſay his ornaments were no great things, but whatever they were, they were ſure to be made worſe by the addition of ‘ mathematical preciſion ;’ while if he had any real genius for carving he would probably improve ſo long as he worked by eye.

LECTURE VI.

ON CERTAIN OTHER THINGS CONNECTED WITH CHURCH-BUILDING.

IN this concluding lecture I propoſe to ſpeak of ſome miſcellaneous ſubjects connected with church-building. Hitherto we have been ſpeaking of what is ſtrictly the maſon's work; and the firſt ſtep from that to the other parts of the building is the decorative carving. In one ſenſe of courſe every ſhaft to a pillar and every moulding to an arch is decorative carving, inaſmuch as it is not eſſential to the conſtruction, and an extremely plain building might be without it and yet be of Gothic character. But everybody underſtands without any exact definition, that what is meant by decorative carving, or even by the word carving alone, is that higher claſs of decoration which is done by a different claſs of workmen, generally after the maſonry is finiſhed, and ſometimes not for ſeveral years after, on account of want of money to do it ſooner. This kind of carving may be ſaid to extend from the purely conventional forms of Norman zigzags, chevrons, and fillets, through the conventional imitations of natural foliage in the Early Engliſh ſtyle, with the birds,

animals and human figures which are found more or leſs perfect in all the ſtyles, and up to the moſt lively imitations of natural forms in the two Decorated ſtyles, and down again through the debaſed exaggerations of them in the Perpendicular, till it ſank into the depravity of the Renaiſſance ſtyle, and at laſt diſappeared altogether, except in the form of bad copies in ſtone, plaiſter, or caſt iron, from real or pretended capitals and cornices of Greek and Roman buildings. The carving of church ornaments by way of imitation of anything in nature whether animal or vegetable, except a few ugly ſtatues for monuments, may be ſaid to have lain utterly dead for nearly two centuries, and it ſhowed no ſigns of revival for many years after the other features of Gothic architecture began to revive.

Of courſe no rules can be laid down to determine how much carving you ought to have in any particular building: it muſt depend upon its general architectural character. I muſt ſay I think that the coſt of half the carving here would have been better ſpent in increaſing the length of the nave or tranſepts from ninety to a hundred feet. The firſt place where it is naturally looked for is in the capitals of the pillars, and more eſpecially in thoſe of the door-ſhafts: on the Gothic principle of putting fine work where it can be beſt ſeen, and coarſe work at a diſtance from the eye. And therefore if you cannot afford to carve the capitals of all the window-ſhafts throughout the church, you had better do thoſe that can be ſeen eaſily, and work the others merely in bold forms of moulding that will be effective at a diſtance. In the ſame way a cornice only twenty or thirty feet from the ground is a better one to fill with carving than one at the height of fifty or ſixty.

And again, if there are ſome parts of a building which can be rarely ſeen on account of its poſition, it is abſurd to laviſh ornament upon them. On this principle I ſuggeſted the removal of a quantity of decoration from the Eaſt front of this church, where it would have been very difficult to ſee on account of the adjacent houſes, to the Weſt, where it will be moſt conſpicuous, notwithſtanding the common prejudice in favour of making the Eaſt end more decorated than the Weſt. And on the ſame principle the whole of the South ſide is more decorated than the North, though (as I ſaid in the ſecond lecture) the North aiſle windows have turned out better in their plainneſs and maſſiveneſs, than the South ones with their more elaborate and attenuated tracery. All this is perfectly conſiſtent with the honeſty of Gothic building, becauſe there is no kind of preſumption that one ſide of a large church is the ſame as the other; indeed they are more frequently different: and it is an entirely different thing from that trick mentioned by Mr. Ruſkin, of ſome Renaiſſance monument in Italy containing a recumbent figure of a man with only one ſide to his face; the other, which is turned away from you and too high to be ſeen without going up to look at it, being left in block: which is about as creditable a piece of economy and deceit as a modern ſet of pinnacles that I have ſeen, which appeared ſolid and crocketted all round from the churchyard, but were really only half pinnacles with flat backs.

All ſtone carving uſed to be done from drawings until a few years ago, and is ſo ſtill in many places and under many architects, and is then as monotonous and ſpiritleſs as may be expected. Carving however is at laſt reviving into an art of deſign inſtead of a mere trade of execution;

and you may ſee the carvers here and in other places at work, not with ſlips of pencil drawings to be copied and multiplied ſo many times over, but with clay models made by the head carver, and ſometimes only a book of dried leaves with which they refreſh their memory when they want it, after arranging out of their own heads a cluſter of leaves, of oak or ivy or anything elſe they like, which grow as it were round the top of a pillar juſt under the capital; and ſometimes they are varied by the inſertion of birds or animals, natural or groteſque, according to the well known practice of the old builders, but not diſguſting as they ſometimes were intentionally, and the later ones ſtill more frequently. This is a very great ſtep in architecture, and not only in the ſtones themſelves but in the men who work them. I fully agree with what Mr. Ruſkin has ſaid on this ſubject in paſſages too numerous to quote, to the effect that architecture will never again be what it once was, until the men who execute ornamental work are capable of deſigning it themſelves. In that way alone we ſhall be able to eradicate the ignorant and vulgar diſpoſition to meaſure the value of decoration by the execution, which comes from the fingers, rather than by the deſign, which comes from the head. I know ſeveral inſtances where the wood carving in churches has been done by amateurs, one by the incumbent himſelf; I am acquainted alſo with a lady whoſe carving in wood is far beyond what one can often find in churches; and I underſtand that the carving in the new Weſt tower of Canterbury was done by the daughters of the architect. I ſee no reaſon why it ſhould not be done frequently by amateurs. Of courſe it requires taſte, ſkill, and leiſure, and ſome little diſregard of dirt, or at leaſt of ſtone

duſt; but ſo does almoſt every amuſement, from duck ſhooting up to chemiſtry, which a man intends to cultivate ſucceſsfully and not with the lazy indifference of a mere killer of time. A taſte for mechanical amuſements is common enough. Some perſons like thoſe of a heavy and purely uſeful kind: others prefer lighter and more ornamental work: and though I have myſelf neither taſte nor dexterity for the latter kind, I can imagine no amuſement more pleaſant to thoſe who have, either in the preſent enjoyment or in the ſubſequent contemplation of it, than to undertake the carving of a church which they have an intereſt in and can reſort to when they have nothing better to do. The work would not go on ſo faſt as to be too ſoon out of hand, and yet the progreſs might be viſible weekly: and thus many a church which is now condemned to remain little more than four walls and a roof, with ſome arched holes for windows, might gradually become as rich in ornament as ſome of the beſt chapels of the thirteenth and fourteenth centuries, and without coſting a penny more to the ſubſcribers who built it.

A great deal of the woodwork in ſuch caſes might be done at home, ſuch as the ends of ſeats or the pulpit and reading-deſk, which can eaſily be taken out of the church to be carved and replaced when they are done. And it ſeems to me that there is a ſtill greater want of ſome improved taſte in the carving of eccleſiaſtical woodwork than of ſtone. I cannot ſay I have ſeen any modern woodwork, eſpecially in the ſtyle of the Geometrical period, which is quite ſatisfactory: probably on account of the great paucity of original examples of that date. Generally there is the ſame fault which I have ſo often talked about with regard

to ſtone, too great preciſion and ſmoothneſs of execution, eſpecially in the forms which are only conventional, ſuch as the common poppy-head finial of the ends of ſeats. Both

Stoke Church, Suffolk.

Howell Church, Lincolnſhire.

in ſtone and wood the conventional ornaments are more difficult than natural ones to execute with ſpirit, ſuch as you ſee even in the rudeſt and leaſt natural of the old Norman and Early Engliſh work. In the ſecond lecture I invited you to compare the beſt modern tooth-mouldings, or ball-flowers, or zigzags, with the worſt old ones you can find; and I am afraid the ſame compariſon may be made with the ſame reſult of the conventional ornaments in woodwork.

Beſides the common faults of ſtone carving there is one ſpecially belonging to woodwork; and that is, the diſpoſition to ſtick on bits of carving, inſtead of cutting them out. Of courſe this is done in order to ſave materials and labour. But here as elſewhere the proper anſwer to that is, if you want to ſave your materials and labour, ſave them; but don't pretend to have expended them when you have not. Again, it is much leſs trouble to cut out arches or trefoils or other pierced ornaments in a thin board with a bow-ſaw and then ſtick them on another board, than to cut them

down into the ſolid: but it is a contemptible thing. I do not mean that there are not caſes where you may fairly put a thin flat board behind pierced work: for inſtance, the backs of ſtalls (above the elbows) are never expected to be anything more than very thin planks, and thoſe planks might rightly enough have any kind of pierced work ſet in front of them and in fact ſtuck on. But there, the carved framework is the principal, and might ſtand by itſelf, either quite open, or with a curtain behind it inſtead of the thin boards, which are not the principal but the acceſſory. But a ſeat end is juſt the contrary: it profeſſes to be a great ſolid piece of wood, thick and heavy for ſtrength and ſteadineſs, and ornamented with carving juſt for the ſame reaſon as a pillar or arch is ornamented; and therefore falſe poppyheads or ſtuck on ſurface ornament is as bad as plaiſter arch mouldings or pillar ſhafts. Somebody may try to find an excuſe for falſe poppyhead finials, I mean looſe ones ſtuck on with a pin, by ſaying that ſtone finials are ſtuck on. Yes, to be ſure they are; becauſe everybody knows that no ſtones are large enough to make a whole gable or buttreſs and its pinnacle or finial; and ſtone is ſuppoſed to keep itſelf ſteady by its weight as well as by the mortar; but there is no difficulty whatever in getting pieces of wood big enough to make the whole of a pew end: on the contrary, the pew end is cut off a piece probably five times as long, and the only reaſon for ſticking on a ſeparate finial is that it is cheaper than to cut it out of the ſolid as it pretends to be. I have ſeen ſome of caſt iron painted to imitate the oak below.

The moſt important piece of woodwork in a church is of courſe the roof, and it is perhaps alſo the part in which the conſtructional ſuperiority of Gothic over other ſtyles of

architecture is the moſt ſtriking. Indeed no other can be ſaid to recognize a timber roof as anything more than a frame for carrying ſlates outſide and a ceiling inſide. And this is the more remarkable, becauſe Gothic architecture alſo poſſeſſes a peculiar kind of ſtone roof as one of its grandeſt features. In fact the Gothic ſeems to be the only mode of building which does not regard the roof rather as a diſagreeable neceſſity than as one of its moſt effective elements of decoration: and therefore Mr. Ruſkin has not unfitly called it the architecture of the Gable. I have ſpoken already of the importance of high pitch in Gothic roofs, and of the angle or degree of pitch which appears beſt to ſuit buildings of different heights; but I have ſaid nothing yet about the materials of which a roof is to be made. As regards the wood, the choice ſeems to lie between oak and deal, though I cannot learn any ſatisfactory reaſon why cheſnut ſhould now be excluded, and perhaps other woods. We know that cheſnut was uſed frequently in old roofs, and it has a very fine colour and laſts even longer than oak, and is eaſier to work: it is alſo ſaid, though I don't know that it is of much conſequence, that ſpiders have a ſpecial diſlike of it. Deal has by no means a bad colour when oiled; though it is generally ſpoilt by being varniſhed beſides, and ſo indeed is oak too often; but people have begun to find out that as regards oak at any rate, that is a miſtake belonging to the high finiſhing ſchool. But deal never has that peculiar richneſs of effect which oak has; and it is not eaſy to get over the feeling that it is the inferior article ſtanding where it ought not, i. e. in the place of the ſuperior, which would have been uſed in a genuine building of the ſame ſtyle. At the ſame time it is only fair to

remember that in the days when oak roofs were univerſal, oak was univerſal, and deal very rare; and therefore we have no right to jump to the concluſion that it is eſſentially un-Gothic and would never have been uſed if the Gothic builders had had the ſame reaſons for uſing it that we have.

The natural rule to adopt now is obviouſly this: where you are obliged to build cheaply, it is juſt as fair to uſe cheap wood as cheap ſtone. But when you are building for architectural effect as well as for uſe, then the wood ought to be of the beſt, juſt as the ſtone and the ſtyle of working it is of the beſt. I don't know that I can illuſtrate the rule better than by the caſe of Doncaſter Church. Everybody knew from the beginning that anything which could be called a reſtoration of old Doncaſter Church could not be made for much leſs than £40,000; and yet the public reſolved that it ſhould be undertaken upon that footing when no more than £30,000 was ſubſcribed. Since the firſt edition of this book was publiſhed we have had to conſider whether we ſhould in effect ſpin out the £30,000 into the equivalent of £33,000, by making the roof and fittings of cheap and inferior materials inſtead of uſing the beſt; and at a meeting of the whole committee it was decided, without a diviſion, that it was our duty to ſpend the money ſubſcribed, as far as it will go, in building ſuch a church as we had been appointed to build, and then ſtop, if the public do not think fit to enable us to complete the work which they authorized us to begin knowing what it would coſt to complete it. But if we had been appointed ſimply to build a new church to hold 1400 people and to coſt no more than £30,000, I have no doubt we ſhould with equal unanimity have decided juſt the oppoſite of what we did, and as the

ſaying is, cut our coat according to our cloth. It may be intereſting to thoſe who are not already informed of it, to know that the effect of ſtopping the work when the preſent funds are exhauſted will be, that the church will be completely and permanently roofed in, but without the tower, and without any fittings except temporary deal benches, ſuch as are now in the building called St. George's Chapel.

It ought not to be neceſſary for me to ſay much about the mechanical conſtruction of roofs, as one would think that would be the firſt thing attended to by thoſe who deſign them. The peculiarity of all the fine roofs of Gothic churches and halls is that they have no tie beam on a level with the top of the walls; and therefore there is great room for a diſplay of ſkill in making the framework of the roof ſo as to be incapable of ſpreading; and for the ſame reaſon, great room for the diſplay of ignorance in a variety of forms. In the roof over the vaulting of the choir of York, built after Jonathan Martin's fire, there are tons of timber of no uſe whatever, and of courſe without the excuſe of it being put there for ornament, as it is never ſeen unleſs you go up into it. I ſuppoſe it was put there becauſe a great quantity of teak timber was given by the Government for the purpoſe, and ſo they thought they had better uſe it ſomewhere. And beſides that, I remember hearing that there were 400 tons of iron ends put to the beams to make them long enough: and therefore I ſuppoſe the architect did not know how to build a roof of timbers ſhorter than his principal lengths. I have ſeen roofs which ſhowed that the perſon who deſigned them did not know even the moſt elementary principle of roof making, that if the framework is not diviſible into triangles joined at their angles, it has

nothing better to depend upon than the ſtiffneſs of the timber and joints and the reſiſtance of the walls: on neither of which things has a roof any buſineſs to rely, except when there are deep buttreſſes up to the top. And even where the triangular principle has been obſerved, there is frequently no attention paid to the diſtinction between the thruſting joints, which require no pinning, and the pulling ones, which are ſeldom ſafe without either dove-tails or elſe iron bands and bolts. I have no doubt that there are at this moment a vaſt number of modern Gothic roofs ſtanding on the verge of inſecurity, and which will get beyond it after ſome years more of tenſion and thruſting upon the walls: and I was not ſurpriſed at hearing of one of the Societies which grant money for building churches having reſolved not to ſanction any roof without a plain honeſt tie beam, which almoſt defies architectural ſkill to make it unſafe; the only fault of it being that it is generally made thicker than any other beam in the roof, whereas it might be thinner, as it only acts by tenſion, and there probably never was a piece of wood in the world actually pulled aſunder lengthwiſe (except in experiments on tenſion), as its ſtrength in that way is enormous, not very far ſhort of iron.

One of the moſt important things to bear in mind with regard to the decorative conſtruction of a roof is that the timbers ſhould *look* thick enough. There is no doubt that a certain amount of redundance is neceſſary in this as in moſt other things, in order to produce proper architectural effect. The bare mechanical conditions may of courſe be ſatisfied long before any architectural effect is produced; for otherwiſe architecture would be identical with engineering, and would be accompliſhed by merely following the

rigid rules of ſcience without the addition of the inſpirations of art. Do not imagine from my ſaying this that I rank ſcience lower than art. Nobody is farther from that nonſenſe than I am, or more conſcious that art is frequently not far removed from barbariſm and profound ignorance of everything elſe, while ſcience is the lateſt and moſt mature fruit of learning and civilization. But although ſcience will teach us how to make the ſtrongeſt buildings with the ſmalleſt amount of materials, it will no more teach us how to make them architecturally beautiful than learning the Lunar Theory will teach us to write poetry about the Moon. By far the greateſt number of fine wood roofs now remaining are of the Perpendicular ſtyle; and therefore in deſigning them for the earlier ſtyles the architects muſt be thrown very much on their own reſources; and there is no part of a building whoſe effect can be leſs judged of by mere plans and ſections and elevations, for the ſimple reaſon that it is always ſeen in ſtrong perſpective from below, and from a great depth below; ſo that timbers which may look large enough in a ſection or even on the ground, will ſometimes look very ſmall and poor when lifted ſixty or ſeventy feet above the eye. This ſcantineſs of timber is a no leſs conſpicuous fault than the miſerable pitch of that modern roof which I alluded to before, as built over a ſmall part of the great church of Bridlington, and which apparently is going to be continued. I cannot conceive a greater waſte of money than ſpending ſeveral thouſand pounds in taking off one bad roof (which has the merit of not being viſible outſide) to put on another bad one, which will be only too viſible, and of courſe will never be altered after it is once done. A bad reſtoration is the greateſt evil that can befall

a church of any value, becauſe it makes a good one almoſt impoſſible for ever.

As to the material to be uſed for covering the roof, I ſuppoſe there is no doubt whatever that lead is the beſt—provided you can afford it. It is the moſt waterproof, the moſt windproof, the moſt laſting, the lighteſt, the leaſt requiring repairs, and the beſt looking. At the ſame time it muſt be added (though it has not much to do with the queſtion whether lead ſhould be uſed now) that, though in itſelf the moſt durable of coverings, it has indirectly haſtened the ruin of many old churches by ſeveral centuries; for they would have laſted much longer if the covering of their roofs had been leſs worth ſtealing by the worthies into whoſe cuſtody they came after their confiſcation. As I did not commend ſome of the alterations in the inſide of Howden Church in the lecture on towers, I am glad to be able to notice that church as an exemplary, and I am afraid, rare inſtance of reſtoring an old lead roof in modern times, and remarkably creditable to a town of no great ſize or wealth. I am ſtill more rejoiced to be able now to add Doncaſter as another, the queſtion of lead *v.* ſlates having been decided by the committee on the ſame grounds as that of oak *v.* deal.

You may aſk why a lead roof ſhould produce ſo much better an architectural effect than any other. As I never heard any difference of opinion about the fact, it would not ſignify in any practical point of view if we could not give any better reaſon for it than for many other ſimilar things, viz. that ſome objects are naturally more pleaſing to the eye than others. But I think that the ſingularly bad effect of that kind of roof which is moſt like lead in colour, and

the moſt unlike it in the direction of its moſt prominent lines, enables us to anſwer the queſtion pretty clearly. The only lines that ſtrike the eye ſtrongly in a blue ſlate roof are the horizontal ones; which is exactly the oppoſite of what happens in a lead roof: and I ſuppoſe nobody who has ever paid five minutes' attention to the matter will deny that of all the poſſible roofs that are ever put on a Gothic building—lead, Yorkſhire ſlates (which are thin ſtones), flat tiles, rough grey ſlates, and ſmooth blue ſlates, the laſt are immeaſurably the worſt in appearance. I ſuppoſe it is for that reaſon that they are uſed in nine caſes out of ten. In the grey ſlates, and the Yorkſhire ſlates, and in flat tiles, the roughneſs and unevenneſs of the ſurface and the edges prevent the horizontal lines from predominating ſo ſtrongly over the vertical. Beſides that, there is ſomething ſingularly diſagreeable in the ſmooth blueneſs of the blue ſlates, from which the others are free, and from which lead is no leſs free, though in mere colour it is more like blue ſlates than grey, at leaſt for ſome years after it is put on. I believe therefore that the reaſons why lead looks ſo much the beſt, are—firſt, that it *is* the beſt, and the eye almoſt naturally approves that, and ſecondly, that the vertical ribs running between the two great horizontal lines of the parapet and the roofridge are more pleaſing to the eye and more Gothic than a ſeries of horizontal ones. The ſmall projections of the *rolls* or joints of the lead along the ridge, juſt making it rough, alſo add greatly to the effect; and this effect is ſometimes artificially increaſed by the addition of a kind of fringe along the ridge, both in lead and in tiled roofs. And yet I found not long ago the drawings of a lead roof propoſed to be executed with this projection of

the rolls above the ridge carefully effaced, by filling up the interval with another roll running along the ridge—in complete ignorance or oblivion moreover of what the rolls really are, viz. the joints of the ſheets of lead, only raiſed juſt enough to prevent the rain from running into the fold, which cannot poſſibly occur at the ridge; and the rolls would not keep in ſhape if they were put there, becauſe the weight of the lead would be always tending to drag it away. In the ſame forgetfulneſs of what they are, the rolls are generally made too big, and then they look ill; and ſo they do if they are too far apart, and alſo if they are too near. I have not the means of telling you exactly from any old examples what the diſtance ought to be: I think about two feet ſix inches. I can only adviſe thoſe whom it may concern not to let their architects fix on any diſtance without being able to ſay why they fix on it, and without giving ſome authentic inſtances to juſtify it: remembering the matter of the thick window mullions which I mentioned in the ſecond lecture. In architecture as in everything elſe, the firſt impulſe of mankind is to decide everything on ſpeculative grounds, and after going on in confident ignorance for years, at laſt it occurs to ſomebody to go and look for a little evidence about matters of fact, and then they find what they might have found juſt as eaſily at firſt, that they have been all this time proceeding without any ground whatever; juſt as philoſophers invented no end of theories to account for the motions of the planets before Copernicus and Galileo thought of aſcertaining what the motions really were.

I ſaid that the lead had haſtened the ruin of the confiſcated monaſtic churches by tempting people to take it off and

ſell it. It has helped to deſtroy churches not a few in another way alſo: viz. by the plumbers leaving their braziers or portable furnaces on the gutters, which are generally laid on wood and ſo eaſily get ſet on fire by hot coals falling out and burning through the lead. I have ſuggeſted a ſimple precaution againſt this in Doncaſter Church, by laying the gutters on ſtone, which is juſt as eaſy to manage and rather cheaper, if there is any difference. It is ſo obvious a remedy for ſuch a well-known diſeaſe that I was only ſurpriſed to find it regarded as a novelty.

If you cannot afford lead, flat tiles are the beſt roofing for architectural effect, eſpecially the Staffordſhire tiles which are made in different patterns, with a variety of them ſometimes uſed in the ſame roof. It is ſo in Stafford Church, of which I ſpoke before. I am not ſure however that they would ſuit all buildings, and there may be caſes where grey ſlates would look better; only blue ones ought to be utterly eſchewed. The Yorkſhire ſlates, or thin ſplit ſtones, are only fit for buildings of rather a rude character. At York Minſter, as at too many others, the Dean and Chapter ſome years ago turned their lead into ſlates in order to avoid having to turn their own ſilver and gold into lead: a vice which certainly cannot be charged upon cathedral chapters of the preſent day; but they found afterwards, at leaſt ſo ſays Browne's hiſtory of the Minſter, that ſlates were not quite ſuch a cheap article to keep on a high pitched roof as they had reckoned on, and ſo they took them off again, and put on a copper roof, I ſuppoſe becauſe it happened then to be cheaper than lead; but it would look very ugly until it began to turn green from oxydation—that is, from decay.

When the roof boards are open to the church, the lead, and ſtill more, ſlates or tiles, ſhould be laid either on felt or on another ſet of boards breaking joint with the firſt ſet; for the joints of the boards never remain cloſe, and ſo the roof will be both cold in winter and hot in ſummer. In that church at Meanwood which I have referred to before, the architect aſſured the founders that I was quite miſtaken in ſuppoſing there was any occaſion at all for felt under the ſlates, and they naturally believed him: the conſequence was that in the firſt winter it was open there came ſuch a flood of cold air down from the roof, that they had to take the whole of the ſlates off and lay them upon felt.

Although a deal roof may look reſpectable if it is properly managed, and not ſpoilt as uſual by being made to ſhine with planing and varniſhing, I confeſs I think it impoſſible to make anything reſpectable of deal pews, pulpits, reading-deſks, or ſcreens, unleſs indeed they are perfectly plain and do not profeſs to have any architectural character. At any rate, the art of working deal fittings ſo as to have any kind of Gothic aſpect has yet to be diſcovered. I do not ſee why elm ſhould not be uſed where you cannot afford to have oak. It is a very cheap wood, and ſhows a very handſome grain when oiled—not varniſhed. It is true that it is given to warping if not very dry before it is uſed; but the remedy for that is obvious; neither is a little warping of any conſequence. I remember an oak poppy-head which had warped itſelf crooked, and it always appeared to me rather a pleaſing variety to find in a piece of modern church building, and I ſhould have ſtrongly denounced anybody who attempted to replace it by a ſtraight one. Elm is very largely uſed for farm houſe furniture in ſome parts of

the kingdom, and if it will do for dining-tables (which muſt be pretty level) it will certainly do for pews and pulpits. It will laſt as long as anything when kept either wet or dry; and whatever wood you uſe, if you do not keep the church dry by making a draught through it (except on Sundays), you will have a very good chance of paying dearly for your neglect by the appearance of that deadly and incurable timber diſeaſe called the dry-rot. The roof ought to have a ſpecial ventilation of its own, for otherwiſe the hot and damp air accumulates there, which is juſt the thing that produces dry-rot. There is nearly always a ſtrong wind through the wooden roof above the vaulting of King's Chapel, which is as ſound as on the day it was put up. I have been in ſome modern roofs which are juſt like a hot-houſe after the plants have been watered.

Smooth working and 'finiſhing' are juſt as much to be eſchewed in the ſeats, as in the roof and walls. In fact, wherever any kind of ornament is to be worked, whether by maſons, carpenters, or carvers, every ſtroke of the tool after the thing is brought to the intended form begins to ſpoil it. And elm has this advantage beſides its cheapneſs, that it is by no means an eaſy wood to make very ſmooth, on account of its grain being not only coarſe but irregular: whereas you can hardly put a rough face on deal if you try. I have ſeen mahogany uſed once or twice, but the effect is very bad. I have no doubt the reaſon is the ſame, that the grain is remarkably regular and ſtraight, though it is nearly as hard as oak; and as ſoon as it is oiled it acquires that peculiar ſhine which does very well for modern dining room furniture, but is exactly the oppoſite of the effect of oak or elm and the oppoſite of what you want in Gothic

architecture. But oiling without planing, produces a very good effect, especially in the roof boards. In Doncaster Church the fittings will be of oak, as soon as the money is raised to put in any, and not varnished or rubbed. It is also intended to use *marine glue* for joining the pieces of wood which are required to appear and to be carved as a solid mass. Nothing looks worse than the separation of such a joint, and common glue is worth very little for holding together two strong pieces of oak (above all other woods) which have a mind to separate: and it is not easy to get planks of oak three inches thick and broad enough to form the end of a seat of proper dimensions.

It must be confessed that our ancestors did not offer much temptation to people to come to church by the comforts they provided for them when they got there. Even if the constitutions of Englishmen were (as they no doubt were) more indifferent to cold and damp in old times than in the more civilized and artificial life which we live now, still their dimensions can't have been very different. I say not *very* different because of that singular fact, which I have several times heard mentioned, that the old armour is found too small for the present average race of Englishmen; so that at any rate we have not lost in size by our more artificial mode of living; just as civilized men are notoriously not weaker, but stronger than savages. Nothing indeed can be better for sitting in than some of the old stalls, such as those in King's Chapel, where the back has a slope of one to four: but most of the common old church seats are frightfully uncomfortable. And for once the modern builders finding something really bad to copy have copied it admirably. There is a peculiar style of church which may

be called watering-place Gothic, ſuch as you ſee at Harrogate and Tonbridge Wells and a multitude of ſimilar places, where the object of the internal arrangements is to divide a given area into the greateſt poſſible number of ſhilling ticket places for ſeeing a popular preacher; and where (with a due appreciation no doubt of the direction in which the largeſt ticket buſineſs is to be done) the ſeats ſeem to be all calculated for female dimenſions and not male. But the builders of theſe eccleſiaſtical theatres have not been ſatisfied with copying the inſufficient ſize of old church ſeats: the old carpenters had the ſenſe to know that it makes a great deal of difference in the available room if you leave the ſpace under the ſeat open, ſo that the feet of thoſe who ſit behind can go under it; and this the modern ones carefully prevent by carrying the backs of the ſeats down to the ground. Any man who ever looked at anybody elſe ſitting in a chair might have ſeen that his back is not vertical but inclined; and might therefore have reflected that the back of the ſeat ought to be inclined alſo, eſpecially when they riſe as high as the ſhoulders. It is not of ſo much conſequence when the ſeat backs are low, as they are in the better claſs of ſeats which have come in very lately; but even in them it is better to have a little inclination, about one in eight; and above all things, the top rail ought not to project. Only a few days ago I was aſked to look at ſome drawings of ſeats, ſigned by a perſon who wrote 'Architect' after his name, with a deep bead along the front edge of the back, which the clergyman who ſhowed me them would have adopted implicitly, to the great and endleſs comfort of the unfortunate beings who were to ſit againſt it. The ſeats alſo ought never

to be leſs than thirteen inches wide with a ſloping back, or fourteen with an upright one, and they will be all the better if they are an inch or two more; for it is a miſtake to ſuppoſe that a wide ſeat uſes up more room than a narrow one, as the meaſure of the requiſite width is what a man requires when ſitting, from his ſhoulders to his toes. Nothing under two feet ten inches at the very leaſt will allow proper room for ſitting, ſtanding, and kneeling, eſpecially if there are any diviſions under the ſeats to prevent people from kicking their neighbours' hats, or appropriating their haſſocks. Where it is neceſſary to ſave room in every poſſible way, it is not a bad plan to make the diviſion under the ſeat only come down to three or four inches from the floor; and never in any caſe ought there to be (what there often is) a thick rail or bar of wood lying along the floor and taking off an inch more from the ſpace for the feet. The book boards are beſt not ſloping, which is of no uſe, as nobody lays a book on them to read from, but flat and narrow, juſt wide enough to lay a book upon ſhut, and to put the arms upon in kneeling. One conſtantly hears and reads objurgations addreſſed to congregations for not kneeling when they ought; but the gentlemen who write and preach them had better go firſt and try kneeling for half an hour themſelves in the places where they are aſtoniſhed that other people decline adopting the penitential apparatus which is provided for their benefit.

I know there is a ſtereotyped piece of cant by way of anſwer to all this: 'People don't go to church to be made 'comfortable, but to ſay their prayers.' To which I reply, They don't go to church to be made *un*comfortable, but &c. I ſuppoſe theſe 'little eaſe' gentlemen find themſelves

in a remarkably favourable humour for attending to anything when they have a good ſound toothache; and of courſe they ſtrictly eſchew the modern abomination of eaſy chairs, and may be found any morning ſitting on a bench nine inches wide reading St. John Chryſoſtom, or John Calvin, as the caſe may be. As for the proprietors of chapels on the opera ſyſtem, the narrow ſeats are undoubtedly no queſtion of mediævaliſm with them, but ſimply of buſineſs. The houſe holds ſo many pounds with the pews as they are, and would hold ſo many leſs if they were larger. But even Mr. Sherrick may as well take the trouble to learn, when he next refits Lady Whittleſea's Chapel, by what conſtruction of ſeats he can give his cuſtomers the maximum of eaſe and convenience that can be made conſiſtent with the minimum of ſpace.

I have already quoted (at p. 22) the late Biſhop of Norwich's opinion on the advantages of open ſeats, though they were re-introduced by a religious party of which he had a ſpecial diſlike. I am not going to diſcuſs that queſtion theologically; though I remember an abſurd pamphlet being publiſhed by a preacher at a faſhionable chapel, and praiſed by the Quarterly Review, with the object of convincing the world that there is a neceſſary connection between Proteſtantiſm and pews, and that taking off the doors has an inevitable tendency to let in Tractarianiſm if not 'flat Popery.' However in ſpite of the pamphlet and the Quarterly and the Record, the movement in favour of open ſeats went on, as movements founded on common ſenſe generally do when they are once fairly ſtarted; and now we rarely ſee a church built or reſtored with the lock-up cloſets and private boxes of faſhionable Chriſtianity of the

laſt century. Even where the clergyman depends on the letting of the ſeats for his income, it is juſt as eaſy and often more convenient to let any required number of ſittings, than to let a whole pew. It is rather tempting to aſk how it happens that people who are ready enough to pay five or ten ſhillings for ſitting a whole evening at an Exeter Hall concert cloſe to they don't know whom, are overwhelmed with horror at the notion of not having an inch board between themſelves and their neighbours in church. However it is not worth ſtopping to ſtrangle already expiring nonſenſe; and whatever theological view you may pleaſe to take of the matter, and whether pride or Proteſtantiſm really has moſt to do with the preference for cloſed pews over open ſeats, this is quite certain: that a church reſtored or rebuilt with open ſeats and without galleries is almoſt invariably found to hold quite as large a congregation as the ſame church did with cloſed pews, and galleries, which are now univerſally admitted to be deſtructive to the architectural effect of any Gothic church; as it is clear they muſt be from the mere fact of their cutting in two the windows againſt which they ſtand. Everybody who remembers the old church here muſt know how much room on the floor of the church may be waſted or made uſeleſs by the galleries, and the ſtaircaſes and ſcreens which they bring after them, and how many pews both on the floor and in the galleries are only half filled, and people who have no pew of their own left to wander about or ſtand in the paſſages till ſomebody is condeſcending enough to open his private box and take them in.

Beſides the other objections to galleries, they add conſiderably to the difficulty of finding a good place and a

proper height for the pulpit and reading-deſk. But it is hardly worth while to purſue the galleries any farther, as they too have had their day, and are rarely reſorted to now, except where there is, or appears to be, abſolute neceſſity for them. And with regard to the pulpit and reading-deſk I know of no better advice to give upon the ſubject than to try various places before you finally fix upon any one, unleſs the conſtruction of the church is ſuch that there is one place evidently marked out by nature (as we may ſay) as the proper one.

Among the many ſtrange alarms about Popery making its way into churches through their architecture, the low-church horror of ſtone pulpits ſtrikes me as the moſt ridiculous. The objection to ſtone altars I can underſtand, becauſe there is a fundamental and eſſential difference between an Altar for the 'ſacrifice of the Maſs' and a Table for the Communion of the Lord's Supper; though I muſt ſay alſo, that as neither the ſtone table nor the wooden one is ever ſeen when it is uſed, being always covered, nor is a wooden one in fact ever moved or wanted to be moved any more than a ſtone one, and as ſtone tables, and caſt iron, and even marble—the moſt Popiſh of all, had long been uſed in churches ſuch as this of Doncaſter where there was juſt as little ground for alarm of the Pope as of the Pretender, it is pretty evident that the ſudden outcry againſt ſtone tables had a good deal more to do with *odium theologicum* than with religion; as it manifeſtly has with ſome later exhibitions by the ſame party in much the ſame character as Mr. Macaulay exhibits their predeceſſors in nearly two centuries ago.

As we have not yet had the advantage of a lawſuit about

ſtone pulpits, I really do not know, and cannot even gueſs, in what reſpect they are ſuppoſed to offend againſt Proteſtant principles: if I did I would try to anſwer the objections. At preſent I muſt be content with expreſſing my own opinion, that a large ſtone pulpit, properly conſtructed, produces a finer effect in a large church than can be produced by a much more coſtly wooden one. A pulpit was not originally a raiſed deſk for a book to lie upon, as the reading-deſk is; neither was it a tub to ſtand in up to your elbows; but a roſtrum, or βῆμα (a place of aſcent) to put an orator in a commanding poſition. 'Paul ſtood upon 'the ſteps.' The pulpit is the ſteps; and it ſeems to me that inſtead of being a mere exalted tub with a partially concealed ladder up to it, it ought to be and to ſhow itſelf a flight of ſteps, with juſt ſuch a baluſtrade or half encloſure at the top as a man would like to feel before him if he mounted on a flight of ſteps to addreſs a congregation. Mr. Ferrey's pulpit which ſtood in the old church here for about a year before the fire, like the one in Miſs Coutts's church in Weſtminſter, was conſtructed on this principle: and though it may be capable of ſome architectural improvement, it was infinitely better than either the old hexagonal wooden box, or than moſt of the ſtone box pulpits like exaggerated fonts, which Sydney Smith called parſon-coolers.

About reading-deſks I need not ſay much. When there are no galleries they require very little elevation; and I think that little ought not to be increaſed, as it is too commonly, by a couple of large poppy-head finials which come juſt on each ſide of the reader's head and produce a very diſagreeable effect. A lectern, or ſeparate deſk to read the

leſſons from, is often both a valuable ornament and a convenient addition to the furniture of a church, as it enables ſomebody elſe to help the reader of the prayers. And ſince a layman may read the leſſons (as they generally do in college chapels, and as I have often done myſelf, both there and in country churches), it ſeems that a clergyman may properly enough read them in his gown only, and therefore may ſit in his own pew and walk to the lectern to read the leſſons; as you may remember was ſometimes done in the enlarged reading-deſk here, either by the clergyman who was going to preach afterwards or by another. But it ſeems to me an objection to lecterns as they are commonly made, i. e. in the form of a roof with the bible lying on one ſide of it, that the pitch or elevation is ſo great that it hides the reader's face from the congregation. The beſt form of lectern is therefore the eagle, as his wings ſupport the book on a more moderate ſlope than looks well on a gabled lectern. But the eagle is a coſtly bird, and I have not yet ſeen any ſatisfactory form of a lectern with one ſide only, and a low inclination. There is room for an architect to achieve ſome credit by deſigning one.

You will probably expect me to ſay ſomething about painted windows. But even if I underſtood more about the art of glaſs painting or any other painting than I do, it is not a ſubject to be diſcuſſed incidentally in the middle of a lecture on a variety of other promiſcuous matters relating to church building; as you will eaſily believe when I tell you that it forms the ſubject of two volumes larger than this, by Mr. C. Winſton, who I ſuppoſe may be ſafely pronounced to be the higheſt authority upon it, and to have done more than all the profeſſional glaſs painters towards

the revival of the art, and the putting down of the conventional abſurdities which had attached themſelves to it; eſpecially that moſt ridiculous one, that as the glaſs painters have hitherto failed in imitating the fine colours of the mediæval artiſts, they ought to imitate their bad drawing as carefully as they can. It is true that he has followed or led his friend Mr. Petit into the running down of Gothic architecture as well as Gothic figure drawing, though the two things have no more neceſſary connexion with each other than Mr. Petit's concluſion that Gothic architecture is impoſſible now has with his premiſes that no modern architect has accompliſhed it: which he is ſure they muſt have done by this time if it could be done at all, when he conſiders the abundance of genius exiſting among modern architects. But that is no reaſon why Mr. Winſton ſhould not know more about glaſs painting than anybody elſe, as he has made it his peculiar ſtudy, and that not merely in an artiſtic but in a ſcientific and practical way.

As the time is come when thoſe who wiſh to put painted windows into Doncaſter Church, in the place either of their monumental windows or ſtones in the old church, ſhould be making preparations for them, I take this opportunity of ſuggeſting that there ſeems no reaſon why the ſame courſe ſhould not be followed here as at Ely; the Cathedral there may almoſt be called a muſeum of the works of all the beſt modern glaſs painters, and of ſome certainly who are not to be included in that claſs. I do not undertake to give judgment upon them, except that it ſeems pretty clear to me that the beſt are by a French artiſt named Gerente, now dead, but leaving a nephew behind him who has ſince put in ſome windows of his own. So far as I can judge,

and I think I may ſay that Mr. Scott is of the ſame opinion, there is certainly no one glaſs painter ſo much better than the reſt, that it is all-deſirable to confide to him all or even many of the windows in the new church here. It is not at all neceſſary that they ſhould all be alike in ſtyle, beyond agreeing with the ſtyle of the architecture. Indeed by the very nature of the thing monumental windows cannot be expected to be all alike, becauſe people to whom monuments are to be erected are not in the habit of dying all at once for the purpoſe of enabling all their monuments, whether lapidary or feneſtral, to be executed in the ſame ſtyle. And there is ſtill leſs reaſon for uniformity becauſe there really is no one kind of window which is clearly to be preferred to all others. I confeſs I rather prefer what are called *medallion* windows in all the inſtances I have ſeen yet, i. e. rather ſmall pictures in ſeparate and ſtrongly marked iron frames, two or three, or even more, in one light of the window if it is a tall one; and I think *figure* windows, i. e. St. Peters and St. Pauls each occupying a ſingle light painted to repreſent a niche, are rather monotonous and unintereſting, even though the painter may aſſure you that he has got accurate portraits of them all and can diſtinguiſh between Tryphæna and Tryphoſa. Large pictures extending over all the lights of a large window, eſpecially ſuch a window as the great eaſtern one, are no doubt the grandeſt if they are well done; but they are alſo the moſt difficult to get well done. It is curious, as Mr. Winſton ſays, that the mullions are not felt to ſpoil the picture, for the eye ſomehow diſregards them as if they were merely a kind of large lattice work ſtanding before the painting. Of courſe the mullions muſt, as it were,

cover their portions of the picture, and not separate it into dislocated divisions; for although in that case you would have the whole picture, while in the other the parts supposed to be covered by the mullions have no real existence, yet the eye can supply the omission, but rejects the dislocation as impossible and monstrous.

As I said in the former edition of this book, I shall take for granted until I see the contrary, that the lessees of the great tithes, who were allowed by the committee to make a remarkably good bargain for their legal liability to restore the chancel, will not allow it to be hereafter said of them, that the only persons connected with Doncaster Church who left their part of the building worse than they found it, were the only ones who derive a considerable income from the property of the church. The representatives of a former lessee of the tithes, who found the old east window of plain or white glass, gratuitously inserted a new one of painted glass: his successors found it a painted window, and will hardly erect a lasting monument of their own shabbiness by leaving it a plain one. I may add that the east window of a church is the most important of all to have coloured, because of the unpleasant glare of a large white glass window facing the congregation, which is sometimes obliged to be subdued by the cheap and dirty device of puttied or ground glass or even excluded altogether by a curtain. I am no advocate for filling windows with painted glass when they are only just large enough to light the church with white glass, as is too often the case in modern churches built in the Early English and Norman styles. But here the defect would be the other way. A church with such a number and size of windows as these, and with no galleries,

will be unpleaſantly light, and will certainly require ſome other and worſe mode of ſubduing the light on the ſouth ſide and eaſt end, if it is not done by the only proper mode, viz. uſing coloured glaſs there.

Moreover I am authorized to ſay that the Vicar does not intend to conſent to the erection or re-erection of any mural monuments in the new church, though it might probably be not an inconſiderable addition to the income to a vicarage by no means overwhelmed with endowment. And as it is by no means neceſſary for a ſingle perſon to occupy the whole of a window, or even the whole of a light, this may evidently be the cheapeſt memorial that can be put up, as well as the beſt—the beſt in character, and the beſt in appearance, the one that derives the moſt effect from its poſition and gives the moſt effect to the building in which it ſtands, and which never invites a diſreſpectful poſterity to deride the folly and bad taſte, and we muſt often add—the mendacity of the erectors. I believe it is no exaggeration to ſay that of all the thouſands of marble and ſtone monuments in and about our churches there is not one in every thouſand, which everybody, except what we may call its owners, would not be glad to ſee put anywhere elſe, and without being very particular where, ſo long as it was out of the church. And balancing the many bad and frightful and lying and diſguſting monuments againſt the very few decent ones that have been erected in the laſt 300 years, it would certainly be a vaſt architectural improvement if a commiſſion were iſſued to remove them all to ſome great monumental limbo of an appropriate ſtyle, and leave nothing in their place beyond a plain record of names and dates.

The taſte and common ſenſe of the people of England

muſt indeed have been at a low ebb when a dead man's relations could derive ſatisfaction from erecting, or could ſuppoſe that mankind in general would be gratified or have their thoughts turned into a profitable and ſerious mood, by the contemplation of a marble tea-urn with the table-cloth thrown over it, or a ſham column broken in two, or the end of a 'ſarcophagus' ſticking out of a wall (an article which only exiſts in reality as a piece of furniture for holding wine bottles), or an axe in a bundle of ſticks (which ſomebody brought from a conſul's tomb at Rome, and the marble-men copied as 'a pretty thing'), or a couple of indecent infants with wings and ſtone tears, or any other of the countleſs multitude of inſane ſymbols which the monument makers have invented for the repreſentation of mortality and grief, and nearly all of which are of pagan origin. Even the more modeſt monument of a plain flat tablet of white marble, they cannot be content to leave in a rational form, but muſt ſurround it with a black border, ſo as to look as like a black-edged viſiting card as poſſible, inſtead of ſinking it in the wall as the old ones were. I don't know to be ſure that the black edges of theſe mural tablets have ſhown the ſame tendency to enormous developement that black-edged ſtationery has done of late; in which there will be ſoon ſo little white left that you will be obliged to uſe twice the uſual quantity of paper to write a letter upon after the death of a near relation. It is ſurpriſing that people will not reflect how many abſurd and vulgar extravagances of all kinds are thruſt upon them by ſhopkeepers, whom they would no more think of going to conſult about a matter of taſte than their own footman; and above all in this matter of mourning, where nobody, eſpecially of the female ſex,

can think of being outdone by their neighbours, or falling ſhort of what they are aſſured is the correct degree of affliction in dreſſes and decorations.

Modern windows of plain or white glaſs no leſs than painted windows differ from the old ones. Firſt, they differ in the glaſs itſelf, which is either the thin glaſs of common houſe windows, or elſe a kind of artificially roughened glaſs, both utterly different from the old; and ſecondly, in the lead diviſions, which, like everything elſe we have been talking of, is now regular, ſtraight, preciſe, and without the ſlighteſt variety, and very often in diamonds of the wrong ſhape beſides. The proper dimenſions of the diamonds appear from ſome old ones which I have meaſured to be five inches from centre to centre of the leads vertically and four horizontally. It is worth ſomething even to put the croſs bars of iron not at exactly equal diſtances: in ſhort, anything that will break the dead and machine-like monotony of modern work improves it. What is wanted in the glaſs is not mere uniform roughneſs, but a moderate unevenneſs of ſurface. In an old window no two adjacent panes look as if they were made of exactly the ſame glaſs: the difference of thickneſs is probably too little to meaſure, but it is not too little for the light itſelf to indicate in paſſing through it; juſt as the ſurfaces of two adjacent ſtones may be ſufficiently out of the ſame plane to reflect light differently, and therefore ſhow as diſtinct ſtones, though they have probably been ſet as true as they could be; but if they are both 'dragged' over together after they are fixed, the diſtinctneſs of reflection is effaced, and the work aſſumes that dead and plaiſter-like aſpect which modern builders are delighted with.

It is a queſtion whether the iron bars or ſtanchions ſhould be outſide or inſide of the glaſs. There is no doubt they look better outſide, and pretty thick, and with an upright bar run through them all, ſo as to form a kind of frame-work which ſhows at a conſiderable diſtance. But then on the other hand the wind tends to tear the glaſs away from its ties to the bars, inſtead of merely preſſing it againſt them, and in time is ſure to looſen it. Perhaps the beſt way is to put two ſets of bars, one inſide only ſtrong enough for tying the glaſs to, and the other outſide for architectural effect. Whenever a wire netting is put outſide to protect painted windows from miſchief, it ought on no account to cover the ſtonework, but muſt be in ſeparate pieces of the form of the lights: otherwiſe the external appearance of the window will be completely ſpoilt, and it may almoſt as well have the worſt Perpendicular tracery as the beſt Geometrical.

The queſtion of wall painting is ſomewhat cognate to that of window painting: at any rate it is worth ſaying a few words upon; and they need be very few. For I think you need only go to that ſame cathedral of Ely to ſee what is the true rule for wall colouring. There is an arch of the ſouth tranſept there with ſome of the ſtones coloured and a little painting on the wall over it, keeping the maſs of the wall unpainted as a ground; and in the choir there is a tomb painted all over and ſhowing no uncoloured ſtone at all: you may ſee a ſtill more gorgeous exhibition of the ſame kind in what they are pleaſed to call the Gothic Court of the Cryſtal Palace. I ſaw it before it was thus decorated, while it was Gothic, and was not Owen Jones and Co., the plaiſter being then alſo rough from the caſts of the origi-

nals and not ſcraped down or 'finiſhed.' It ſeems to me that if this is the right way of treating ſtonework, it is a moſt abſurd waſte of money to uſe ſtone at all; for plaiſter will do juſt as well for painting over. From theſe and other examples I am convinced alſo that Mr. Ruſkin is perfectly right in ſaying that colour, when it is uſed on ſtone, has no buſineſs to run along a moulding, but only acroſs it, as it does when ſome but not all the ſtones of an arch are painted, and as it would if ſtones or marbles of different colours were uſed. And on the whole, it is a mode of decoration which clearly ought to be uſed very ſparingly and with great judgment, and one that I ſhall be very well contented to do entirely without at Doncaſter, as I prefer the chiſel to the paint bruſh, and ſtill more to the gilding bruſh, as an inſtrument of decoration.

Before I leave the fabric of the church I have a ſingle remark to make on the conſtruction of altar-rails. In ſome churches they have vaniſhed altogether, I ſuppoſe in order to diſplay the variety of table cloths which is generally a characteriſtic of the ſame churches. In ſome others there are 'practicable' rails (as they ſay in theatres) which make their appearance when the Communion is adminiſtered; and in others, though the rails are not actually moveable, they are made as ſlight as they will ſtand and as if they were rather things to be aſhamed of. I no more profeſs to underſtand the prejudice of one theological party againſt altar-rails than of the other againſt ſtone pulpits; and I ſhould apply the ſame rule to both of them: as you muſt have them you had better make them as handſome as poſſible, and at any rate not attempt to attenuate them down to inviſibility. Moreover you may as well ſee that the

architect does not, as he probably will if you leave him alone, make the gate even more invifible than the rails, fo that you are tempted to wonder whether the clergyman leaps over the rails in order to get to the communion table.

I have now finifhed all I had to fay on the fabric of the church. But there are ftill fome other things, which, though too often forgotten when people are making up their eftimates, are quite as neceffary to be provided before the fabric can be ufed as fome of thefe we have been confidering. We will begin with the important article of Warming and Ventilation.

There are fo many new fchemes conftantly brought forward for thefe purpofes (which ought always to be confidered together), that if I were to expref's a decided opinion in favour of any of them to-day, it might turn out wrong almoft before the book is publifhed. The cheapeft mode of warming, in prime coft at leaft, is undoubtedly by ftoves; and fo far as I can judge, that which is called the Gill-Stove (from a fuppofed refemblance to the gills of a fifh) appears to be the moft free from the defect of burning the air, as it is called, or heating it fo much as to be injurious. And it need not ftand in any confpicuous place, but anywhere where the air admitted into the church can be made to pafs over it, fo as to be warmed as it comes in. And of courfe there ought to be fome other aperture, high up in the building, to draw off the air which has been burnt in another way, i. e. by breathing. In very cold weather I do not believe anything will induce people to have thefe apertures open while they are in the church, becaufe a draught, even of air not very cold, is a thing intolerable to the majority of mankind, either in reality or imagination; and

practically it does not matter which. If we could only ſecure their being kept open at all times when people are not in the church, and eſpecially between morning and evening ſervices, a great deal would be gained: the church would be warmed and dried for the morning, and again cleared by the evening of the bad air of the morning. Generally it is carefully bottled up for the uſe of the evening congregation; and nothing but the ſtrongeſt orders, and ſeeing that they are executed, will make people of the claſs to which ſextons and vergers belong throw away a ſingle cubic foot of warm air in cold weather by opening windows or ventilators: warm air is warm air with them; and they utterly repudiate the diſtinction between air warmed by a fire into a pleaſant atmoſphere and air turned into warm carbonic acid by the lungs of a whole congregation at work upon it for a couple of hours.

It is not often however that ſtoves can conveniently be uſed in churches, on account of the room they occupy or render uſeleſs, as people cannot ſit very near them; and therefore it is generally neceſſary to reſort to hot air or hot water carried in pipes along the floors. The uſual plan is to bury the hot water pipes in a ditch and put a grating over it, and let them warm the air through it as they can. I ſuppoſe there is ſome aſſignable quantity of pipes, water, and fire, which will warm any building in this way; juſt as there would be if the pipes ran along the roof. But as it muſt be about four times as much as will do the buſineſs in a rational way, there ſeems to me no particular advantage in reſorting to it, except that it ſaves the architect the trouble of deſigning ſome decent form and arrangement of pipes to run above the ground inſtead of under it. Not that

there is the leaſt difficulty in finding a place for them; for as the floor of the ſeats is generally raiſed four or five inches above that of the paſſages, nothing can be eaſier than to run the pipes along the ſtep; and as a round pipe is the worſt, having the leaſt heat-evolving ſurface for its contents, there is really nothing to contrive except to take care that the joints of the ſquare pipes do not project inconveniently; and that may eaſily be done by making the joints all come oppoſite to the middle of the ſeat ends. We had a ſtriking proof of the folly of burying the pipes in old Doncaſter Church; when ſome new ſeats were put in, the pipes were ſunk for about half the length of the nave; and thereupon that part of the church became nearly as cold as if there had been no pipes at all in it, while the reſt was warm enough.

There is indeed one caſe in which the laying of the pipes in a ditch is allowable, and that is where it is carefully provided that all the in-coming air ſhall be brought from the outſide of the church through the ditch and over the pipes; but that is by no means eaſy to ſecure, and when it is ſecured, it requires much more fire to do the buſineſs effectually. The beſt way, I have no doubt, is to lay the pipes on the floor, and provide for the change of the air by any effectual ſyſtem of ventilation without draughts: for no congregation will ſubmit to draughts on any terms. The plan of Mr. Watſon of Halifax appears on the whole to do that moſt effectually. He has availed himſelf of the principle, that if you put a vertical diviſion in an open ſhaft over a fire, or a ſet of lungs, the up draught will elect for itſelf one of the halves of the ſhaft and the down draught the other, and ſo all other openings may be diſpenſed with,

provided of courſe the ſhaft is wide enough to carry up and down the requiſite quantities of air.* Probably making windows to open on oppoſite ſides of the clearſtory will produce much the ſame effect, but with more draught. The uſual miſtake in the window openings is putting them in the loweſt windows, and often in the loweſt part of thoſe windows, inſtead of the higheſt. There are ſome ſtriking practical illuſtrations of this common blunder in Dr. Arnott's laſt book on this ſubject. It is hardly neceſſary to remark that the lower the roof of the church and the ſmaller its area in proportion to the congregation, the more ventilation is requiſite: thus a church with a flat roof and galleries will have its air made unwholeſome in much leſs time than a church holding the ſame congregation without galleries and with a high open roof. But however large the building is, it ought to be capable of frequently having a draught right through it, and near the top, to keep it dry, if for nothing elſe.

On the ſubject of lighting I will only make one remark; and that is, that you ſhould take care that the gas pipes are laid where they can be got at without pulling up a great quantity of the floor when they want repairing. The per-

* This, like many other inventions ſince the days of Solomon, is only a revival by a more energetic man of what had been ſuggeſted before by ſomebody who contented himſelf with ſuggeſting. I remember a plan in an old Mechanic's Magazine which I uſed to read at ſchool twenty-five years ago, for ventilating, and partially warming too, by two concentric tubes, of which the outer one was to carry off the heated air of the room and impart it to the air that is deſcending through the inner tube which comes down rather lower—or *vice verſâ*. It is well known that two oppoſite currents of fluid may be made to economiſe heat in that way.

ſons who are in the habit of making and fixing theſe lights, ſuch as Mr. Skidmore of Coventry, or Hardman of Birmingham, know by experience where they ought to be placed to be moſt effective according to the plan of the church. Some very handſome gas lights, not pretending to be either oil lamps or candles, but of a form ſpecially adapted for gas, have now been introduced by them, and are a vaſt improvement on the old ſyſtem of branches out of the pillars and gas ſticks riſing out of the tops of pews.

An Organ has become ſuch an eſſential part of the furniture of a church that it ought not to be altogether unnoticed in a book on church building. After having been regarded for many years as a relic of Popery, juſt as Gothic architecture and all architectural decoration was, organs have now found their way into moſt diſſenting chapels that can afford them. Exeter Hall has been obliged to provide an organ and 'ſacred muſic' for thoſe whoſe principles are equally oppoſed to theatres and cathedrals; and even Town Councils levy an organ rate unſcrupulouſly upon everybody within their dominion to enable them to add muſic to the architectural attractions of their new Town-halls. The paſſion for organ-building therefore clearly requires no encouragement; perhaps it is rather more in need of moderation; and organiſts and organ-builders ſometimes require reminding that a church is not a building erected for the purpoſe of giving effect to their 'divine box of ſounds,' as 'the Doctor' tells us that the old organ at Doncaſter was addreſſed by the curate who preached the firſt ſermon before it in the year 1740. Sir Chriſtopher Wren more irreverently called the organ at St. Paul's, that 'box of 'whiſtles,' with the addition of an epithet exactly the oppo-

ſite of divine, becauſe the authorities of the cathedral, who thwarted him with every poſſible form of ſtupidity, inſiſted on putting it on the top of the ſcreen and ſo cut off the choir from the reſt of the church, as was then the faſhion in the cathedrals. And in like manner the organs in pariſh churches were generally put wherever they would hide the beſt window or the beſt part of the church; ſometimes at the weſt end, ſometimes at the eaſt, and ſometimes in the middle, at the junction of the nave and choir. The Doncaſter organ ſucceſſively occupied two of thoſe places within my recollection, and had juſt been moved into a third and more ſuitable place, on the north ſide of the church, when the church and organ periſhed utterly together: for it was remarkable that of the vaſt weight of metal of 3600 organ pipes not a ſingle ounce could be found, or at any rate diſtinguiſhed, in the ruins of the church.

In the new church the organ will ſtand in the North tranſept, which is generally the beſt place for it; and when there is no natural tranſept, it would probably be the beſt plan to make one, or at leaſt a large receſs from one of the aiſles, on purpoſe to receive the organ, as was done at the reſtoration of the Temple Church. But when that is done, care ſhould be taken to let the organ have width and height enough, ſo as not to be (as it is in the Temple) ſqueezed as it were into a deep hole. The tranſept here being twenty-ſeven feet wide and ſeventy feet high is admirably adapted for that purpoſe, and the middle of the organ need not riſe ſo high as to hide the tracery of the window: hiding the mullions is of little conſequence, as the mullions of a large Decorated window may be of any height from one foot up to thirty; and it happens that thoſe of this North window

are the worſt of all the four great windows, having been advanced too far on the thin ſyſtem before I found them out. In the laſt lecture I remarked, as many other perſons have done, that it was a miſtake not to make the tranſepts longer than they are; and this is ſtill more apparent now, as the organ muſt project beyond the North wall of the chapel or chancel aiſle, though it fortunately can be kept behind that of the nave aiſle and yet leave room for as large organ as the old one; which I am afraid there is very little chance of getting, as it would coſt £3000 at leaſt. The old one was the largeſt church organ in the kingdom except that of York Minſter, which was not conſidered equal to it in quality.* The organs in ſeveral of the cathedrals have lately been moved away from the top of the ſcreen. At Canterbury it is cut up into different pieces and ſtowed away in the triforium and at the back of the choir ſtalls. But I think this plan of making it inviſible is a miſtake. At Ely it is much better made ornamental, filling up an arch of the choir, and projecting a little over

* It is right to ſtate that in this inſtance, Meſſrs. Hill, the builders, were ſubjected to what is called 'profeſſional ſuperintendence;' and that they are not reſponſible for and do not approve of the York organ in its preſent ſtate. Before an organ-player is allowed to relieve the organ-builder of the reſponſibility for his own work, and receive a 'commiſſion' for doing ſo, it is as well to aſcertain which of them is the fitteſt to be truſted. I am far from ſaying that no organiſt is: but there are well known inſtances of organs utterly ſpoilt by the interference of thoſe who are not; and nearly all the fineſt organs have been made without it.

I am glad to find that Mr. Rogers, the organiſt to whoſe zeal and ability the Doncaſter organ owed much of its celebrity, has already received conſiderable aſſiſtance towards the providing of a new one.

the ſeats below; and if I remember right, it is in nearly the ſame poſition at Exeter and Durham; and no doubt the organs will in time be ſimilarly dealt with in all the cathedrals, and the ſcreens made open as at Ely, ſo that people in the nave can ſee and hear the ſervice. At Durham the ſcreen is aboliſhed altogether; but the effect is not good, and the advantage to the congregation outſide is not a bit greater than at Ely, where the ſcreen exiſts, but is no obſtruction to the ſound or the view, and is a great ornament to the church, both in itſelf, and by dividing the building into diſtinct parts, and ſo making the whole look larger.

It is not ſo generally known as it ought to be, that an organ is an expanſible inſtrument, and may be enlarged from time to time with very little derangement of its original works, eſpecially if they are laid out with a view to enlargement. And therefore it is much better to begin with a moderate number of very good ſtops (or ſets of pipes) than with a large number of bad ones: juſt as it is better to build the neceſſary parts of a church firſt as good as you can, and leave ornamental or leſs neceſſary ones to be added afterwards, than to begin with thin walls and bad materials in order to make as great a ſhow as poſſible for the money, on the uſual principles of modern vulgarity. Neither is there any occaſion to gild organ pipes. If they are made of the proper metal, i. e. with the proper quantity of tin to the lead, they look very well in their natural colour. Not that there is any objection to ornamenting the pipes by painting or diapering or gilding when you can afford it. There is no appearance of trying to diſguiſe the real metal by gilding; for (as Mr. Ruſkin ſays) it is re-

cogniſed univerſally as a mere ſurface decoration on account of the enormous expenſe of ſolid gold and the univerſal underſtanding that a gold ſurface is not ſolid, which does not apply to ſilver. I think however that diapering is a handſomer mode of decorating organ-pipes, except perhaps in ſituations ſo dark that it would not be ſeen ſo well as gilding. Thoſe who wiſh to learn more about organs had better conſult the book lately publiſhed on the ſubject by Mr. Hopkins, the well-known organiſt of the Temple Church.

ON CHURCH BELLS AND CLOCKS.

AS there is no Engliſh book, or treatiſe, or article in an Encyclopædia, containing any uſeful information on the ſubject of church bells, and as I happen to have paid a good deal of attention to it, having been a bell-ringer from my youth, and am now ſuperintending for the Government the caſting of the largeſt bell and peal of bells that have ever been caſt in England, I ſhall make no apology for concluding theſe lectures with ſome practical remarks on church bells, and the clocks which ſtrike upon them.

Although the art of bell-founding ſurvived the other Gothic arts for ſeveral centuries, it has of late ſunk very low. I do not know of a good peal of eight bells, or even a ſingle good bell of thirty cwt. that has been caſt within the laſt thirty years. And the art of caſting very large bells, ſay of four tons or ſix feet diameter, had periſhed long before that. There has been no good bell of that ſize caſt within the laſt century and a half at leaſt. That of St. Paul's, which had to be caſt twice over, and was made in 1709, though better than any of the later ones, is not generally conſidered a really good bell for its weight. It

is difficult to ſay whether the great bell of Exeter is better or worſe; for though heavier than St. Paul's (being very thick in the waiſt) it is ſtruck with a clock hammer ſo ſmall that nothing like the proper ſound is brought out, the clock being very old and quite unequal to its work; and it is never rung with the clapper, as great Tom of Oxford is: which I ſhould think is the worſt of all the large bells in the world. If I were a bell-founder I would undertake to re-caſt it into a much more powerful as well as a much more muſical bell for nothing, making it pay its own expenſes by a reduction of the weight: and the ſame may be ſaid of the great York bell. The new great Tom of Lincoln of 1834 is ſomewhat better, but much lighter, and therefore not ſo difficult to caſt well. But thoſe who knew the old one of 1610 ſay that this is not to be compared with it, although this is a ton heavier; and from a compariſon of a piece of the metal of the old bell, which I have, with ſome which came from the foundry where the preſent one was caſt and very nearly at the ſame time, I ſhould be very much ſurpriſed if it were not ſo. The largeſt bell that has been caſt in modern times was made at the ſame place in 1847 for a Roman Catholic Church at Montreal. I ſaw it before it went out and thought it no better than the York one, which is thought ſo little of, that after coſting about £2000 no uſe is made of it, except ſtriking the hour once every day on it by hand.

As you may like to ſee a liſt of the principal very large bells in the world, I give one in the next page (omitting the Chineſe, which are of a different ſhape and very bad), made up from the beſt information I can get. I do not vouch for the accuracy of all the particulars, as different verſions are

given of ſeveral of the bells : in thoſe caſes I have adopted the figures which appear to me the moſt likely to be correct on the balance of evidence.

	Weight.		*Diameter.*		*Thickneſs.*	*Note.*
	Tons.	*cwt.*	*feet.*	*inches.*	*inches.*	
The great bell of Moſcow, caſt 1653, broken 1737	193		22	5	23	
Another, caſt 1819	80					
Another, fell 1855	57					
Novogorod	31					
Olmutz	17	18				
Vienna, 1711	17	14	9	10		
Weſtminſter, 1856	14		9	2	$8\frac{1}{2}$	E
Erfurt, 1497	13	15	8	$7\frac{1}{2}$		F
Notre Dame, 1680	12	16	8	7	$7\frac{1}{2}$	
Sens	15?		8	7		
Montreal, 1847	12	15	8	7	$8\frac{1}{4}$	F
Cologne, 1448	11	3				
Breſlau, 1507	11					
Gorlitz	10	17				
York, 1845	10	15	8	4	8	F ſh.
Bruges	10	5				G
St. Peter's, Rome	8					
Oxford, 1680	7	12	7		$6\frac{1}{2}$	
Halberſtadt, 1457	7	10				
Antwerp	7	3				
Dantzic, 1453	6	1				
Exeter, 1675	5	11	6	4	5	A
Lincoln, 1834	5	8	6	$10\frac{1}{2}$	6	A
St. Paul's, 1709	5	4	6	$9\frac{1}{2}$		A
Ghent	4	18				
Boulogne, modern	4	18				
Old Lincoln, 1610	4	8	6	$3\frac{1}{2}$		B
Fourth quarter bell, Weſtminſter, 1856	4		6	$1\frac{1}{3}$	$5\frac{2}{3}$	B

Theſe are all ſtationary bells, uſed only for clocks to ſtrike upon, or at the moſt are occaſionally ſwung frame-

high, or up to the horizontal position ; whereas bells rung in a peal, like our church bells, are swung completely up or *raised*, and *set* with the mouths upwards when the ringers stop between their peals. The largest bell rung in a peal in England, or I suppose in the world, is the tenor of the peal at Exeter, which weighs three tons seven cwt. and is six feet in diameter : they are about the best as well as the largest peal in England, and of course are old. No other nation rings their bells in this way, but only half raise them, and ring their chimes by the lazier and less effective plan of tolling, wherein the bell swings just enough to make the clapper strike it. Some of the foreign bells are indeed raised, though not by swinging, but by putting a counterpoise on the top of the stock, so that the bell can be turned up like a grindstone. This is also a lazy and inefficient substitute for our mode of ringing, and cannot get anything like the full sound out of the bell, for mechanical reasons which I cannot go into here. The sole objection to our plan is—not that it is hard work, for that is one of the great attractions of it, and there is no more healthy exercise, but when the bells are very large and the tower weak, either from decay if it is old or poverty of construction if it is modern, the horizontal thrust from the swing of the bells is too much for it to bear. Not that it is to be inferred that bells are not safe to ring merely because the tower sways with them. Stone, like everything else, is elastic to a certain extent, and many a tower has gone on vibrating for centuries without being any the worse for it. Indeed there are very few towers that do not shake a little when the bells are rung : it is simply a question of degree how far the ringing is safe. When it is not, it must be stopped

and the bells merely tolled, or elſe rung by pulling the clappers only. But in that caſe, and indeed wherever the bells are occaſionally 'clappered,' care ſhould be taken to put ſome ſeparate pulleys in front of the middle of each bell, with a ſeparate and thinner rope to the clapper, and ſo arranged that the ringer cannot hold it againſt the bell; for I believe more bells are cracked by tying the ropes to the clappers than by all other means together. All the pulleys and clapper-ropes together will not coſt as much as recaſting the ſmalleſt bell in the peal if it is cracked; and it is generally not the ſmall bells but the large ones that get cracked firſt.

Every architect as well as every bell-founder knows that a bell frame ought not to touch the walls, and that many a tower has been ſeriouſly damaged by pariſh carpenters making the frame 'ſteady' by wedging it againſt the wall. And I only notice the point here, in order to remind clergymen and churchwardens that there is no part of their fabric in which the maxim that 'a ſtitch in time ſaves nine' is more true than in the bell chamber, and moreover that they ſhould ſee that the ſtitch they take is the right one, and taken under good advice. But there is another point more particularly within the province of the architects, and of which they are not ſo well aware; and that is the importance of leaving height enough between the belfry floor and the bell chamber to admit of two diſtinct ceilings, of which the loweſt ought to be not leſs than ſixteen feet from the floor for a ſmall peal of bells and twenty for a large one (the neceſſary height depending on the ſize of the bell wheels). When there is only one floor between the bells and the ringers, the noiſe is ſo great that the ringers

cannot hear the changes called by their leader or 'bob-'caller;' and conſequently I underſtand they have in ſome places refuſed to ring; which is not a very ſatisfactory reſult after paying from £300 to £1000 for a peal of bells.

The bell frame is generally, I may ſay always, made by the bellfounder; but when a heavy peal of bells is contemplated, a little co-operation between him and the architect would often ſave a good deal of trouble. I need hardly ſay that the floor ought to be very ſtrong and made of boards ſo thick and well ſpiked to the beams on which it lies, and the bell frame itſelf bolted to them, that it may be all as one piece, and not be capable of wriggling about under the action of the bells. Moreover the floor girders had better be placed ſo as to help the bell frame as much as poſſible, and not come, as they ſometimes do, juſt in ſuch poſitions that they have to be cut through, or a piece cut off their ſides for the bell ropes. In ſome caſes too it is neceſſary, or at any rate expedient, to carry the thruſt from the bells to ſome lower part of the tower by means of ſtruts. It appears that ſome of the very large foreign bells hang on frames mainly compoſed of diagonal timbers reaching a long way down the tower; and it was mentioned lately at the diſcuſſion on bells at the Inſtitute of Architects, that a frame of this kind reaching quite to the bottom of the tower was made for the bells at St. Michael's, Coventry, under the direction of Sir Chriſtopher Wren. The bell frames themſelves are often made too ſlight; for in this as in other church work, the unſcientific conſtruction of the old builders has been carefully copied, while the maſſiveneſs which made it of little conſequence has been omitted. Thus we ſee bell frames which bend and vibrate in every direction when

the bells are ringing, becauſe the timbers are neither thick enough to reſiſt the bending force, nor ſtiffened with any diagonal bracing to make up for it. The bell-founders or their carpenters will tell you that if the bells are made to ſwing at right angles to each other they will counteract each other and the bell frame will be kept ſteady; whereas everybody who has learnt the firſt three pages of any mathematical book on mechanics knows that two forces at right angles are juſt thoſe which cannot poſſibly counteract or neutraliſe each other in any degree whatever. A frame made in that way will no doubt be ſtiffer than one which has all the bells ſwinging all one way, and has no proper croſs bracing, becauſe the croſs framing does incidentally increaſe the ſtiffneſs of the whole cage (as it is called). But the only poſition in which the ſwing of one bell can counteract that of another is when they ſwing in directions oppoſite and not at right angles to each other; and this can only be effected by making them all ſwing North and South, or all Eaſt and Weſt, whichever way the tower happens to be ſtrongeſt, and arranging the fall of the ropes ſo that thoſe which follow each other cloſely in ringing round may ſtart in oppoſite directions, and above all, tying the frame together firmly with diagonal bracing either of wood or iron.

Every bell-ringer knows what the *ſtay* and the *ſlider* of a bell is; but they do not know that many a bell is hard to ring for no other reaſon but becauſe the ſlider is too heavy, and moves in a level groove inſtead of in one cut in the arc of a circle with the gudgeon or pivot of the bell for its centre. The ſtay ſhould be thick and the ſlider thin, and the board on which it runs ſhould be covered to protect it from the greaſe dropping from the gudgeons; for

greaſe makes wood ſticky though it lubricates iron, which it cannot enter: if you want to make the ſliders run with perfect eaſe, black lead is the thing to rub them with. I made all theſe alterations myſelf in a peal of bells which I uſed to ring above twenty years ago, and I have never rung any ſince which went ſo eaſily. I believe alſo that it is a miſtake in bell-hanging to raiſe the top of the bell above the axis on which it turns. It is only done with large bells, and for no good reaſon that I can learn. It has been ſuppoſed to ſhorten the time of their revolution; but it will have rather the contrary effect, if any, ſince all the weight which is taken away from below the axis is put on above it; and it weakens the ſtock, or requires a much larger and heavier one, and makes the bell 'riſe falſe,' i. e. with the clapper on the wrong or low ſide, and therefore not ſtriking with the proper force. It alſo makes the bell not eaſier to ring, as is perhaps imagined, but harder. The great bell of York, which is ſet very deep in the ſtock, has been vainly attempted to be raiſed (i. e. ſwung till it ſtands mouth upwards) by thirty-ſix men, even though they were encouraged by the promiſe of having it filled with beer when they ſhould have raiſed it, from a gentleman who was confident that it could not be done by reaſon of its mode of hanging; whereas the heavier bell at Erfurt, which is not cut up into the ſtock, is raiſed by a much ſmaller number of men without any difficulty. And I have heard other inſtances of the ſame kind. The reaſon of this apparent paradox is, that a bell is not lifted up by the wheel as a weight is by a lever, but ſwung up as a pendulum; and the nearer it is hung to its centre of gravity the more it approaches to a grindſtone in its motion, and at laſt the

centrifugal force becomes too little to carry the bell over the friction of the gudgeons. It may poſſibly be worth while to diminiſh that friction for very large bells, by putting the gudgeons on friction wheels (as is done with the great bell at Notre Dame); for the more the bell is raiſed in the ſtock, of courſe the leſs the centrifugal force will affect the bell frame and the tower; and if the friction were reduced, ſetting them up in the ſtock would really make them eaſier to ring.

Everybody who knows very little about the matter thinks that it is from nothing but old-faſhioned prejudice and ſtupidity, that we go on uſing inſtruments ſo coſtly in their materials as bells of the common kind, and requiring ſuch a maſs of thoſe materials to produce a given note. This was one of the queſtions raiſed in the diſcuſſion at the Inſtitute of Architects referred to juſt now. Of courſe I cannot repeat the experiments here, and it would be of no uſe to reprint the commentary upon them, by which I think the audience were ſatisfied on that occaſion that none of the propoſed ſubſtitutes for bells would be of any uſe for the purpoſe for which church bells and public clock bells are wanted, viz. to make a loud, diſtinct, and muſical noiſe; and I only allude to that view of the ſubject now, that you may not ſuppoſe it has been overlooked, or waſte a great deal of your own time and money in ruſhing into a field of experiments which has been hunted over a dozen times already and always with the ſame reſult. Great expectations were formed a few months ago of the caſt ſteel bells, of which ſome are made at Sheffield, and ſeveral were ſhown in the Paris Exhibition. I have not ſeen any of them myſelf, but nearly everybody from whom I have

heard anything of them, agrees in ſaying that the ſound is harſh and inferior in richneſs to that of bell metal, as I had no doubt it would be from what I had ſeen before of other bells with iron in their conſtitution. In the ſame way glaſs has been talked of as a cheap ſubſtitute for the copper and tin compound; but even if it could be made to ſtand a heavy blow, I know that it is very inferior in power to a common bell of half the ſize or one eighth of the weight. The new metal *aluminium* is ſaid to make very good ſmall bells: at preſent it is much too expenſive for large ones; and even if it came down to the price of copper, I do not believe that a metal of ſuch aſtoniſhing lightneſs can have the ſame ſtrength of ſound as bell metal.

On theſe two points, the inferiority of the modern bell-founders to their predeceſſors, and the failure of all attempts to find any efficient ſubſtitute for bells of the common form and materials, I can add the teſtimony of Profeſſor Wheat-ſtone to my own: not that any teſtimony beyond that of your own ſenſes is requiſite on the firſt point. For in a letter to the Board of Works reſpecting the great Weſt-minſter clock bells he remarks on the two principal bell-founders in England having failed in three ſucceſſive at-tempts (viz. Meſſrs. Mears twice, and Meſſrs. Taylor of Loughborough once) to produce a ſatisfactory peal of bells for the chimes of the Royal Exchange. He alſo undertook to enquire during the Paris Exhibition whether any of the foreign bell-founders had better preſerved the old traditions of the art, and whether any efficient ſubſtitutes for bells had been invented. He has told me the reſults of his enquiries, and it is clear that there is no reaſon to believe either that we ſhould have done better to employ a foreign bell-founder,

or that anything is to be gained by any material deviation from the old Engliſh form and compoſition of bell metal. Indeed from what I have ſeen myſelf of the foreign bells which have been ſent over here, I think that, although ſuperior to ours in appearance and ſmoothneſs of caſting, they are decidedly inferior in tone. And from their ſhape I ſhould be ſurpriſed if they were not; as I always obſerved from my earlieſt days of bell-ringing, that long-waiſted bells of rather a flower-pot form are inferior to thoſe whoſe internal height is not more than three quarters of their diameter, and more contracted in the *waiſt* (or middle) than is the faſhion with the French bells.

It is not worth while to ſpeculate on the cauſes of this decline of an art which cannot have been any great ſecret, or have required any ſingular and ſpecial ſkill; ſeeing that in former days the buſineſs was by no means confined to two or three large firms as it is now, but there were bell-foundries, or at any rate founders who knew how to caſt bells, all over the kingdom. There was a liſt publiſhed lately in a Wiltſhire Archæological Magazine, by the Rev. C. Lukis, of no leſs than thirty-ſeven different places whoſe names he had found in the *legends* caſt upon ſtill exiſting bells, beſides a number of unknown abodes of founders who have left only their names. There was once a bell-foundry at Doncaſter, it ſeems. Our old Doncaſter bells of 1722 were caſt no farther off than the village of Bawtry; and they were always conſidered very much better than the heavier peal into which they were recaſt in 1835 at the well-known foundry at Whitechapel, which has exiſted under different firms for nearly two centuries. But you may naturally aſk under theſe circumſtances what proſpect I can hold out

of the new tower of Doncaſter being furniſhed with bells equal to the old ones of 1722, and ſtill more, what chance there is of our getting a ſet of clock bells fit to be heard and capable of being heard (in a favourable wind) all over London, and the largeſt of which is to be three times as heavy as the old great Tom of Lincoln, and the ſmalleſt large enough to be the tenor of a good ſized peal of church bells.

I expect to manage it very much in the ſame way as the improvements in the art of church clock making have been introduced within the laſt ten years. The Royal Exchange clock, which was pronounced by the Aſtronomer Royal to be 'the beſt public clock in the world,' was made by the late Mr. Dent, when he had never before made a turret clock in his life, and only ſet to work to make this himſelf, and ſpent three or four times its coſt in machinery for the purpoſe, becauſe the regular makers of church clocks refuſed to do it for him with the improvements he propoſed to introduce. In this matter of the bells alſo, the two founders I have mentioned were kind enough to convince the chief Commiſſioner of Works, by the conditions and objections which they attached to their tenders, that it would not do to employ either of them, and ſo they threw it into the hands of ſome new ones whom I had before recommended, Meſſrs. Warner of Cripplegate, who have long had a very large buſineſs of a kindred kind, viz. braſs-founding, and are therefore not likely to be extinguiſhed as others have been, by the competition of Whitechapel. They had already introduced ſome improvements in the mode of caſting bells, and have for ſome time been making experiments, chiefly from ſuggeſtions of mine, for the purpoſe of aſcertaining the beſt proportions both of form and compoſi-

tion. Moreover the bells are not to be paid for without the certificate of two at leaſt of three referees—Profeſſor Wheatſtone, the Rev. W. Taylor, F.R.S. (the author of that offer to fill the great bell at York with beer for the ringers who could raiſe it as Meſſrs. Mears had hung it), and myſelf.

I take this opportunity of ſaying that it is a great miſtake to ſuppoſe that muſicians, as ſuch, are the fitteſt perſons to be appointed to judge of the goodneſs of bells. Unleſs they are converſant with bells, and know by experience what kind of ſound ought to come out of a given weight of bell metal, their opinion is not worth as much as that of many a bell-ringing cobbler, who does not know one muſical note from another, but who knows very well the difference between the ſound of a good bell and a bad one. Muſicians are of courſe the perſons to judge whether the bells of a peal are in tune with each other. But that is the ſmalleſt part of the buſineſs; for a ſet of caſt iron pots might be in as perfect tune among themſelves as the fineſt peal of bells in the world, and the tune or note of a bell can be altered a little by cutting, whereas the tone or quality of the ſound is incurable if it is bad. Moreover muſicians are very apt to condemn bells which are not of ſome muſical note exactly: which is a piece of pure nonſenſe; for the names or pitches of the notes are only conventional, and I am told by thoſe who underſtand ſuch things much better than I do, that what is called in muſical ſlang 'concert pitch' has been raiſed ſo much within living memory, that bells and other unchangeable inſtruments which uſed to be of the note C would now be called B. So long as the bells are in tune among themſelves, and the tone of each bell is

good in itſelf, it does not ſignify a farthing what their notes may be called; for it is nothing but a queſtion of names after all. The judgment of common bell-ringing referees however muſt be received with caution, as they are very apt to be pleaſed with new bells, eſpecially if the bell-founder has the means of communicating with them beforehand. But there muſt be everywhere perſons within reach, who can be depended on to judge honeſtly whether a new peal of bells is equal to ſome well-known old one of about the ſame ſize in the neighbourhood or elſewhere. They ſhould be hung and rung before they receive the final judgment of the referees, as it is very difficult to judge of their effect except from actual ringing; and a founder has no more right to complain of his bells being rejected after he has hung them, than a ſteam-engine maker to complain of his engine being condemned after he has had the expenſe of fixing it, if it is found unequal to the work it profeſſes to do, and is even broken in the trial: which has been decided to be the law, as it clearly ought to be. The bell-founders will tell you, truly enough, that the bells will improve by uſe, or at any rate they will get louder. But that will not make bad bells into good ones. Some old bells are ſtill as bad as moſt modern ones; and the beſt ſmall peal I ever heard was then quite a new one, at Caſtle Camps in Cambridgeſhire, made by a bell-founder at one of thoſe ſmall and now vaniſhed foundries which I alluded to before; and it is ſingular that he owed to their excellence his ſubſequent admiſſion into the Charter Houſe after he had been ruined by the competition of the larger and worſe bell-founders.

It has been alleged, in defence of the firſt and ſecond

peals at the Royal Exchange and of other bad modern bells, that they are caſt from the ſame *ſweeps* or patterns as certain undoubtedly good made at the ſame foundry long ago, and therefore we are aſked to infer that they muſt be good. That is much the ſame thing as if your cook were to defend a pudding which nobody could eat, by ſaying it was made from the ſame receipt as many good ones had been made from before. This excuſe for the Exchange bells is indeed a moſt unlucky one for the founders; for as the quality of bells cannot poſſibly depend upon anything except the ſhape and the metal and the mode of caſting, and the bells were univerſally condemned, and they themſelves have proved that the ſhape cannot be in fault, they have thereby proved alſo without further trouble, either that they uſe bad metal or have loſt the art of caſting it ſoundly. That thoſe bells, and alſo ſome of the late Doncaſter peal, were unſoundly caſt, I can teſtify myſelf, becauſe there were large holes viſible in ſome of the Exchange bells even on the ſurface, and I have a ſmall piece that was chipped off the lip of the Doncaſter tenor, and that alſo is porous and unſound. Bells, like any other caſting, may be unſound inſide without any holes being viſible outſide; but there is luckily a ſimple mode of trying and convicting them. The ſpecific gravity of the old Tom of Lincoln was 8·78; and that of the old York bell metal very nearly the ſame: and even this is rather below what it ought to be; for I find in Brande's Chemiſtry and in a French book on alloys, that the ſpecific gravity of an alloy of copper and tin in bell metal proportions ſoundly caſt is as much as 8·83; and there is no ſenſible difference whether the proportions are 1 to 3 or 1 to 4; becauſe although the tin is lighter, yet

the more of it is put in, the denſer and cloſer it makes the compoſition, until it reaches the proportion for ſpeculum metal, or 1 of tin to 2 of copper, which is too brittle for bells, but is of the ſame ſpecific gravity. The ſpecific gravity is very eaſy to meaſure. You have only to weigh the bell, firſt in air in the common way, and call the weight A, and then in water, and call that weight W: then the ſpecific gravity $= \frac{A}{A-W}$; which you ſee ought to $= 8{\cdot}75$ at leaſt, even allowing a margin below the loweſt weight I have mentioned: if it is not, the caſting is unſound. Of courſe you muſt take care that the bell is completely ſubmerged (never mind how much more) and completely filled with water.

Then as to the compoſition. The modern bell-founders ſay that it ought to be 4 of copper to 1 of tin; and ſo they put in the metals in thoſe proportions, or as near as they can gueſs at them. But the tin waſtes more than the copper in melting, and moreover the leſs tin is put in, the more any given waſte alters the proportion; and therefore the bell comes out probably about $4\frac{1}{2}$ to 1 or even lower (as all theſe alloys are called high or low according as there is much or little tin in them). I find that a conſiderable majority of the French authorities give $3\frac{1}{2}$ to 1 as the right proportion, and ſome 3, and only one is for 4 to 1. And ſtill further, it is found by analyſing a piece of old Tom of Lincoln, that the tin and a little antimony together make one fourth of the whole, or one third of the copper; and in the old York bell metal alſo the tin is not one fourth but one third of the copper. Some years ago there was a faſhion of putting antimony into ſpeculum metal;

but it is now abandoned and its place filled with tin in the proportions I have mentioned: ſo that the antimony in the Lincoln bell muſt be reckoned as belonging to the tin, and the proportion of the two hardening metals to the ſoft copper is 1 to 3, as in other old bells. I find it ſtated moreover quite innocently in ſome modern books, that a good deal of modern Engliſh bell metal is found to conſiſt of 80 per cent. of copper, 10 of tin, and about 10 of zinc and lead: the writers apparently not knowing that they are therein ſtating that ſuch bells are fraudulently adulterated with thoſe two cheap and bad metals to the extent of that 10 per cent., and that they only contain half of the loweſt amount of tin which has ever been repreſented as the proper one. As there is generally no material difference between the price of copper and tin, I have no doubt that the reaſon why the founders like as much copper and little tin as poſſible (without reference to adulteration with baſer metals) is that the leſs tin there is, the ſofter and eaſier the bells are to cut for tuning: which of courſe is an utterly inſufficient reaſon for making them fundamentally bad; eſpecially as they want no tuning if they are caſt properly. I have had ſome bells of about 4 cwt. caſt in the proportion of 2 to 7, and 4 to 13, and 1 to 3 melted twice over, and they are all manifeſtly ſuperior in quality to the uſual proportion. But the 1 to 3 metal at the firſt melting was much more brittle, and had a more conchoidal or glaſs-like fracture, than old metal which gives the ſame reſult by analyſis: the reaſon of which is, that modern copper, like modern iron, is worſe than the old, as it comes from the ſmelter.

Lord Roſſe adopted multiples of the chemical equiva-

lents, or atomic proportions for combination, of tin and copper for his great ſix feet ſpeculum. They are copper 32, tin 59, very nearly ; and for ſpeculum metal, 4 equivalents of copper to 1 of tin give nearly the uſual ratio of 2 to 1 in weight. For bell metal 6 equivalents of copper to 1 of tin will give about 13 to 4 in weight ; and 7 equivalents of copper to 1 of tin will give very nearly 15 to 4 ; which would probably be produced by putting the metals in the proportion of 2 to 7, as before recommended. It is impoſſible and uſeleſs to be very preciſe, becauſe the waſte of the tin in melting is not uniform, but is greater the longer it has to be kept hot, or the more of it has to be melted at once, and of courſe it waſtes more if it is melted twice than once, as is done for ſpeculum metal, and will be done for the Weſtminſter bells : it appears to be not improved but injured by more than two meltings. The common notion of the old bells having ſilver in them is a mere vulgar error equal to any of Sir Thomas Browne's.

By uſing theſe two teſts then, of ſpecific gravity for ſoundneſs of caſting, and analyſis of ſome filings of the bell for preventing adulteration and for ſecuring the proper quantity of tin, we can at any rate ſecure the purity and ſoundneſs of the compoſition, which is manifeſtly of primary importance in the making of good bells. But the ſhape and thickneſs are of great importance alſo. I do not know that there is anything to complain of in the general ſhape of Engliſh bells : indeed I have already ſaid that I think it better than the foreign ſhape, which is taller and ſtraighter in the ſides, and I have not found by experiment that any advantage is to be gained by any material deviation from the common Engliſh ſhape. But there is a great deal to

complain of in the modern diſtribution of the thickneſs of all except the ſmalleſt bells in a peal, as you may ſee at once from this. The tenor of a modern peal of ſix is ſcarcely ever made twice as heavy as the treble, and often not ſo much, eſpecially by the makers of the laſt Exchange peal, who ſeem to aim at making all the bells of a peal of the ſame weight, as they are gradually approaching nearer and nearer to it. And now obſerve the weights of the tenor and the ſixth above it, or the fifth from the treble, in the grand old peal of Exeter Cathedral, the largeſt in England: 5th bell, 15 cwt.; tenor (B flat) 67, or $4\frac{1}{2}$ times as much. And the ſame muſt be the proportion at Sherborne Abbey Church, where there is by far the largeſt peal of only ſix bells in England, alſo an old and famous one. I have not the weights, except of the tenor, but I have the dimenſions, from which I can judge of the weights pretty well, eſpecially as they are very nearly the ſame as the ſix largeſt of the Bow bells, of which the tenor weighs above 53 cwt. and the ſixth above it 12 cwt.; and yet the Bow bells are much younger than either Exeter or Sherborne; ſo that this ſyſtem of getting the requiſite note in the large bells by making them thin and ſmall inſtead of large and heavy in proportion, is really quite a modern one. But the bell-founders are not the only perſons to blame in this matter. The people who employ them almoſt always aim at what they call a 'fine *deep-toned* bell.' They don't really know what they mean by it, but they hear a thin deep-noted bell in the ſhop at a diſtance of three or four yards, and think that is the very thing; and the bell-founder tells them they may have a peal as deep as the Bow bells, or even Exeter, with about half the weight of metal; and ſo

they order it, and go away thinking that they and the bell-founder together have done a very clever thing, and put to ſhame the waſtefulneſs of the old founders with their bells of two and three tons. And then when theſe fine bells come to be rung, they are ſurpriſed to hear them ſound no better than a ſet of great iron pans at the diſtance of half a mile off; and ſometimes they get the tenor recaſt half as heavy again in deſpair, and then it is incongruous with the three or four bells next to it, and probably a bad one in itſelf beſides.

Of courſe there muſt be *ſome* form and thickneſs which will produce the beſt tone out of a given weight of bell metal; and if a ton of metal when caſt into that beſt form (whatever it is) will produce a bell of the note F ſharp, it is as plain as anything can be that you will get a worſe bell if you have the ſame weight of metal caſt into the note E. Moreover it is a certain rule, or law of nature, that if you make a ſet of bells of any ſhape and any metal, ſo long as they are all of uniform ſhape and compoſition, and with all their dimenſions (thickneſs included) varying according to the following numbers, 60, 54, 48, 45, 40, 36, 32, 30, they will ſound the eight notes of the common diatonic ſcale, and will be in fact a peal of eight bells in perfect tune with each other, no matter in what key, and no matter whether they are good or bad bells. Now the eight largeſt of the ten Exeter bells are very nearly indeed in theſe proportions; and by way of comparing it with a modern peal, by no means ſo thin as many that have been made ſince, the D bell at Exeter is 38 cwt. while the late Doncaſter tenor of that note was only 31; and the new tenor in C at the Exchange is only 33, while thoſe at Bow and York

Minſter of the ſame note are 53. I ſaw lately at Whitechapel a peal of ſix bells for Rawmarſh Church with a tenor in G of only 9 cwt., while the bell of that note at Bow is 17, and it is nearly as much in all the other old peals of which I have the particulars. I have no doubt alſo that the thinneſs of modern bells is made ſtill more injurious by their being made of ſofter and leſs elaſtic metal than the old ones: the difference in the quantity of tin does not affect the note, though it does the quality of the tone.

The only excuſe for it is the very inadequate one, that in a peal of many bells the ſmall ones would be overpowered by the large if they were all made of the ſame proportions, and that it is therefore neceſſary to make the large ones rather thinner in proportion to their diameter. But in the firſt place nothing like ſo much difference is requiſite or proper as the modern founders introduce; and if it were, it is evident that the largeſt and moſt important bells of the peal ought to be made of the beſt proportions, and the ſmaller bells made thicker, inſtead of ſpoiling the large ones by making them thin. You may ſee how little difference is really requiſite from this: the eighth bell above the tenor at Exeter is not quite two inches out of three feet larger than the theoretical proportion of half the tenor; and inſtead of being $\frac{1}{8}$ of the weight (as the weights vary as the cubes of the diameters when the proportions are the ſame) it is a little more than $\frac{1}{7}$; whereas, in modern peals of eight, the tenor is ſeldom more than four times the weight of the treble, and often leſs, and the thickneſs of all the bells nearly equal. The treble will be not $\frac{1}{2}$ but $\sqrt{\frac{1}{2}}$ the ſize of the tenor, or 42 inches inſtead of 30 for a tenor of 60, if they

are both of the ſame thickneſs. At Bow the difference is more than at Exeter; but there the miſtake was rather made the other way, of caſting the ſmall bells too thick, eſpecially in the waiſt, which beyond a certain point obſtructs the ſound, and ſpoils the bell; as it obviouſly muſt, for a bell nearly ſolid would have no ringing ſound at all. The ſimple way to put a ſtop to this ſacrificing of the large bells of a peal to the vanity of being able to ſay that they are of a very low note, is to ſay nothing about the note, but to inſiſt that no bell in the peal ſhall be thinner in the *ſound bow* or thickeſt part, than $\frac{1}{13}$ of the diameter, or thinner in the waiſt than $\frac{1}{36}$ of the diameter. And if the treble is $\frac{1}{11}$ of the diameter, the difference will be amply ſufficient even for a peal of ten. The bell-founders themſelves know and admit that from $\frac{1}{12}$ to $\frac{1}{13}$ of the diameter is the beſt proportion for the thickneſs; only they wilfully abandon it in the larger bells, for the reaſon I have mentioned, and of courſe they will continue the practice ſo long as they are not required to improve it. I am aware that ſome of the old bells, and even ſome of Exeter ones are as thin as $\frac{1}{15}$ in the ſound bow; but they are very little (if at all) thinner in the waiſt than $\frac{1}{36}$ of the diameter; whereas the modern tenors are thin all over, as you may ſee from the weights and the notes without even meaſuring them.

All theſe are things which people can meaſure and judge of for themſelves without requiring to underſtand the deeper myſteries of bell-founding: and I ſhall not waſte time by entering into details which would be of no uſe to perſons who have not to make bells but to pay for them, and to ſee that they are what they ought to be before they are paid for. I will therefore only add another caution with reference to

contracts for casting or recasting a peal of bells; and that is to take care that some limit is specified, beyond which the weight is not to go—or at any rate not to be paid for. I know a case where fifty per cent. more than was reckoned upon had to be paid for recasting a large peal, because the bell-founder chose to increase the weight; not for the purpose of making the bells thicker, for they were thick bells before, but for the purpose of making them larger and thinner according to the modern fashion, and therefore worse. It is true enough, as the bell-founders will tell you, that the exact weight cannot be determined beforehand: but it is also true that a bell-founder who knows his business can determine it within very close limits: five per cent. excess beyond the estimated weight is quite enough to allow: if nothing more is to be paid for, the founder will take very good care not to exceed it. And you may as well remember that an addition of only five per cent. in the weight will make an addition of nearly twenty per cent. in the cost, because you have to pay for all that as new metal at 7 or £8 per cwt. instead of £2 per cwt. for recasting old metal.

Another cause of the general bad effect of modern peals of bells is the universal desire to put more bells into a peal than is justified by their weight, and consequently by their time of swinging. The tenor of a peal of eight ought on no account to weigh less than a ton; and 16 or 18 cwt. is not at all too heavy for the tenor of a peal of six, especially when made of the proper thickness and note, which should certainly not be lower than G or F sharp. About 30 cwt. is the best weight for a peal of eight; and the tenor of ten ought not to be much (if at all) less than two tons, and

of twelve three tons. For that reaſon I never would give any help or encouragement to the propoſals for adding two trebles to the old Doncaſter peal when the ſubſcription was raiſed for recaſting it in 1835, or afterwards. Moreover thoſe who agitate for ten bells do not know how much more difficult it is to get them rung decently than eight, for this reaſon, that the ſmaller the intervals are the more confuſion is produced by any accidental increaſe or diminution of them from a bell being pulled too hard or too little. When people cannot raiſe the money for a good peal of eight bells they had much better be content with a good peal of ſix than attempt a bad one of eight. And if they cannot afford a good one of ſix (five bells make a poor peal and coſt very little leſs than ſix) they will get a much grander effect out of only two or three rather larger bells than by trying five or ſix ſmall ones; and moreover thoſe two or three large bells may at any time have ſmall ones added above them, while a peal of ſix ſmall bells cannot have large ones added below them; at leaſt nothing leſs than four larger ones can be added, of which few towers would be capable. Two large bells ringing together, as they do for ſervice at New College, Oxford, every morning, have a fine effect; and as we are talking of cheapneſs, it is worth remembering that two bells coſt very much leſs to ring than ſix, not merely becauſe two is leſs than ſix, but becauſe it requires no bell-ringing ſkill as the ringing of a peal does. I am told that three bells which would be the firſt, third, and fifth of a peal of five are ſometimes uſed abroad, and found very well together. Three bells at theſe intervals, weighing altogether about 32 cwt. would give a tenor of 18 or 19; ſo that you may have the advantage of

one large bell without the expenſe of a full peal leading up to it. And here again three other bells, to make them into a peal of ſix, may be added at ſome future time.

Some perſons may fancy that large bells would be a great diſturbance to a neighbourhood which has been accuſtomed to ſmall ones. There cannot be a greater miſtake. Although a large bell is heard farther than a ſmall one, it does not ſound louder at a ſmall diſtance, and the ſound is certainly far more pleaſing. Nothing ſhort of boiler-plate riveting or ſteam whiſtling can be worſe than the clanging of the one, two, or three ſmall and harſh bells with which the modern London churches torment their neighbours for half an hour before every ſervice. And the worſt of them all, indeed a bell which may be matched againſt all England for badneſs, is that which ſummons the richeſt pariſh in London to its devotions: I mean St. George's, Hanover Square. The people who live almoſt under the ſhadow of the Weſtminſter clock tower will not hear the 14 ton bell there more ſtrongly than the bell of half a pound weight in the clocks on their own ſtaircaſes.

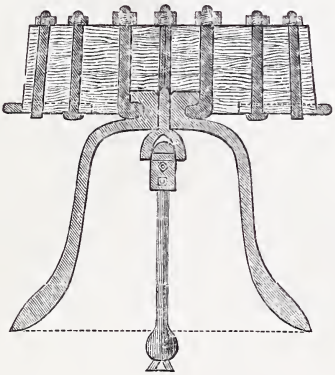
I will finiſh this diſſertation on bells by deſcribing a mode of hanging them, which, if it had been adopted 500 years ago, would have preſerved to us a multitude of fine bells which have long ago departed out of this life and been melted down into bad ones. Setting aſide the cracking of bells from accidental cauſes, from ringing with tied clappers, ſtriking them with clock hammers with ſharp edges, and the like, the diſeaſe of which bells generally die is being worn thin where the clapper ſtrikes, and cracking in conſequence. This, by the bye, is another reaſon in favour both of thick bells and of hard bell metal; and it is ſome

ſatisfaction to think that many of the thin and ſoft and bad bells of modern times will come to an end ſooner than if they had been good ones. A Mr. Baker took out a patent a few years ago for hanging bells in iron ſtocks, either upon a ſingle central bolt which is to carry the clapper alſo, and turning the bell from time to time by means of a toothed wheel and endleſs ſcrew ſet in the ſtock; or elſe by caſting the bell with a long hollow axis riſing out of the crown, and cut into a ſcrew at the top and held up by a large nut, ſo that the whole weight and ſwing of the bell and clapper are borne by this ſingle bell-metal ſcrew, the clapper bolt being put through it. I mention this particularly becauſe I underſtand that the patentee (under the common deluſion of patentees whoſe inventions do not ſucceed) is perſuaded that the plan I am going to deſcribe is a piracy of his, becauſe it is for effecting the ſame object by a different method: nothing under a lawſuit will enable ſome perſons to underſtand the rule that a patent only applies to the method of effecting an object, and not to the object to be effected—to a method, not to a principle.

The invention would undoubtedly enable the bell to be turned; but (as far as I can learn) the inventor has not ſucceeded in perſuading any bell-founder, bell-ringer, or architect to adopt or approve of it; nor do I think he is likely to do ſo, for reaſons not worth ſtopping to explain.* Accordingly when he exhibited it at the Inſtitute of Archi-

* I confeſs I am never very ſorry to hear of any patented invention failing. For, like moſt of the principal engineers, many of the moſt ſcientific men (ſee the Report of the Jury on Philoſophical Inſtruments in the Great Exhibition), and even ſome of my own profeſſion whoſe intereſt is the other way, I have ſome time ago come to the concluſion

tects laſt year, I ſuggeſted another mode of doing the ſame thing at no more expenſe than the common mode of bell-hanging, and in a way which ſeveral perſons converſant with bells were pleaſed to approve of. This ſection of the



Bell hung on new plan.

bell and ſtock will explain it at once. The bell is caſt with a thick neck having a flanch round the top and a round hole through the middle, inſtead of canons. It is attached to the ſtock by four or ſix bolts with bent ends taking hold of the flanch, and for large ſwinging bells the bolts would

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that patents are ‘ a great obſtruction to ſcience ;’ that on the whole they do far more harm than good, and are (with very rare exceptions) beneficial to no claſs of the community except patent agents and lawyers. Putting the coſts of and connected with each patent at the very low average of £100, there muſt be nearly £300,000 a year ſpent upon them. I doubt whether anybody could be found to ſay he believes that £30,000 a year profit is made out of the whole of them, or even £3000 that could not be got juſt as well without any patents.

have a ring round them all to make them more ſecure againſt bending. The clapper bolt has nothing to do with carrying the weight of the bell, and goes ſquare through the ſtock but round through the bell, ſo that it always keeps its poſition though the bell may be turned. When the bell is worn in one place ſo much as to want turning, you have only to looſen the ſix bolts a little, and then a few of the ringers ſtanding round the bell can eaſily twiſt it round a little, and the bolts will be ſet up again: and in this way a bell may as eaſily laſt 1000 years as 100 without any riſk of cracking. Bells which are only ſtruck by clock hammers do not get ſenſibly worn in 100 years, from the greater flatneſs of the blow. But as the conſtant ſtriking in one place muſt have ſome tendency to weaken the bell, thoſe of the Weſtminſter clock will be hung in this way. The great bell would probably not be recaſt, taking into account the bell-founder's riſk in ſuch an undertaking, and the incidental expenſes, for much leſs than £1000.

It ought to be known that the recaſting of the great Tom of Lincoln in 1834 probably ſaved the Cathedral from being deſtroyed as Doncaſter Church was. For they luckily took that opportunity of making a tank or water ciſtern near the top of the great tower; but for which it would have been burnt down, and probably the whole church with it, about three years ago, the tower being ſet on fire by lightning; and as it is at the convergence of all the roofs, it would have ſet them all on fire, and fire engines are of no uſe at that height. The great tower at York is now alſo furniſhed with rain ciſterns, and Doncaſter is intended to be; and it is clear that no tower ought to be without one. It need coſt very little, and we ſee what it

may ſave from this example of what occurred at Lincoln. I need hardly ſay that lightning conductors are equally or even more eſſential to the ſafety of a tower, and ſtill more of a ſpire: one rod ought to riſe from all the four corners of a tower, and they may be united into one below. Fixing them into the wall with glaſs is all nonſenſe: ſome inſane perſon quoted Profeſſor Faraday's authority for it in the *Times* not long ago, and he immediately contradicted the ſlander.

Church towers have been the uſual and eſtabliſhed abode of public clocks for five or ſix centuries, in fact from the earlieſt days of clock-making. And in this article of eccleſiaſtical furniture, no leſs than in the bells which belong to them, the ſpirit of improvement has been very nearly extinguiſhed by that other ſpirit by which the world is now poſſeſſed, which builds ſtucco Italian palaces and ſham Gothic churches, makes guns that burſt as ſoon as they are fired, and ſpades that will not dig, puts ſoldiers into contract ſhoes with rotten ſoles and competition coats of 'devil's duſt,' poiſons our food to make it cheap, drugs even apothecaries' drugs, and adulterates the very materials for adulteration, and is finally upheld and applauded by Mancheſter economiſts and metropolitan moraliſts in jury boxes, as a neceſſary and beautiful reſult of that newer and profounder maxim than any in the Bible, that it is the firſt duty of man to buy everything in the cheapeſt market, and to cheat his neighbour as he expects to be cheated.

I cannot enter here into the mechanics of horology. I muſt refer thoſe who wiſh to ſtudy that branch of the ſubject to the lateſt book upon it, viz. the reprint in a ſeparate volume of the article on clocks, which I wrote for the laſt

edition of the Encyclopædia Britannica, publiſhed by Black of Edinburgh: they are alſo ſold by Mr. Dent, the well-known clockmaker in the Strand,* for the price of two ſhillings, which is Meſſrs. Black's concern, not mine. What I have to treat of here is the architectural part of the buſineſs, which muſt ſtill be determined by the builders of the church even if they are employing Mr. Dent himſelf to build the clock, inſtead of accepting the loweſt tender as if clock-making were as eaſy to judge of as the carting of ſtones at ſo much a load, or adopting the oppoſite but equally effectual plan for obtaining the worſt poſſible articles—'encouraging native talent,' which is the modern euphemiſm for native ſtupidity and jobbing.

I will begin with that which is directly connected with the architecture of the church. It ought to be ſettled when a tower is built, whether it is to have a clock face upon it or not; and unleſs there is ſome manifeſt reaſon why it ſhould not, it ought to be preſumed that at ſome time or other it will. If the church is in a town where there are other places more convenient for a public clock, and the ſtyle of the tower is ſuch that a clock face would ſpoil it, the rational way is to decide at once not to have one. Many of the cathedrals and ſome pariſh churches have clocks without any external dials; and they are certainly

* The ſhop in Cockſpur Street now belongs to a different perſon of the ſame name and family, who has nothing to do with the turret clock factory. That, and the Royal Exchange ſhop, and the one in the Strand, belong to the Mr. Dent who is making the great Weſtminſter clock and does the work of the Royal Obſervatory. I mention this becauſe I am conſtantly being aſked about it, and all theſe ſhops and factory did belong to the late Mr. Dent.

now of leſs uſe than formerly, ſince every houſe has ſome kind of clock in it, which are all regulated by the ſound and not by the ſight of the principal church clock, unleſs it is a notoriouſly bad one, and there is ſome other in the town better. The money that a large clock face with the dial-work will coſt will almoſt pay for adding quarters. This is what we intend to do in the new church at Doncaſter, and I am happy to be able to add that, beſides having ſecured and appropriated to its proper uſe the value of the four tons of bell metal which were ſaved from the fire, with intereſt upon it until the order is given to Meſſrs. Warner for a new peal, I have received from my friend Mr. Dent a promiſe of a clock which will ſtrike the quarters on four bells, like the famous chimes of St. Mary's, Cambridge, and made after the pattern of the one which I deſigned for the cathedral at Frederiçton a few years ago,* and which has ſince been copied for other places, and become his ſettled mode of conſtruction. His patterns have alſo been followed by Mr. Joyce of Whitchurch (Salop), and by Mr. Potts of Pudſey near Leeds; and as far as I know, by them only. The other makers of church clocks have ſteadily rejected every ſcientific improvement, whether of Engliſh or French origin, ſince the invention of the dead eſcapement about 120 years ago. And as nearly all the clock-makers in London and many in the country, who profeſs to ſupply church clocks, really get them from one or two

* It conſtantly happens that church clocks are ſtopped by a froſt. The Biſhop of Frederiçton told me that he wanted a clock which would ſtand their cold of 40° below zero. I invented an eſcapement for the purpoſe, and the clock has not only gone, but always kept exactly the ſame rate in this extreme cold as in the hotteſt weather.

manufactories in Clerkenwell, receiving a good commiſſion thereon, and even on their recommendations of theſe Clerkenwell people, while the three I have mentioned do not do their buſineſs on that ſyſtem, you muſt not be ſurpriſed if you find nine out of ten denounce Dent's caſt iron clocks and Deniſon's gravity eſcapement as impoſtures which they would be quite aſhamed to adopt. I may add that the adoption of this conſtruction has not made good clocks dearer but cheaper than they uſed to be: for Mr. Dent's price for a clock of this kind, ſtrong enough to work four dials of ten feet diameter and ſtrike on a bell of two tons weight with quarters on four other bells, is only £160, and I know of caſes where £500 and more have been paid not long ago for clocks neither ſo powerful nor ſo accurate.

If on the other hand it is thought neceſſary to have a viſible clock face, as it generally is in ſmall towns where the church clock is the only public one, then in building a new tower the architect ought to provide a proper place for it: or perhaps I ſhould rather ſay he ought not; becauſe when it is provided by the architect, it is almoſt invariably done wrong, and coſts more to make it right afterwards than if nothing had been done. If the tower has a tolerably large ſpace of blank wall at a ſufficient height, the architect had certainly better leave it alone; for there is no better material for a dial than the plain ſtonework painted, and of courſe there is none ſo cheap; and none is ſo bad as that which nearly all the clockmakers will force upon you, if you will allow them, a convex copper dial. When a metal dial is neceſſary, as it is ſometimes, the dial ought to be concave, not convex, for reaſons which you will find in the book to which I referred juſt now, beſides other matters

relating to dials which are too purely mechanical to repeat here. The two faults which are moſt commonly found in architects' clock faces, are that they are not near large enough, and that they are ſunk in the wall; and ſometimes ſtill worſe, covered with a canopy; both which things keep them dark and dirty, as the light does not fall ſtrongly enough upon them, nor do their faces get waſhed by the rain unleſs they are left quite open. It is difficult to give a preciſe rule for the proper ſize of dials, as it depends on the diſtance at which they can be ſeen, and that depends upon the poſition of the church as well as the height of the dial above the ground. But under ordinary circumſtances it may be ſaid that the diameter of the dial of a church clock ought to be not leſs than one tenth of its height from the ground, and never leſs than four feet even if the height is leſs than forty, except when the building on which it ſtands is very ſmall.

The things called ſkeleton dials are ſeldom ſucceſsful, as the hands cannot be ſeen upon them a hundred yards off, unleſs the ſtone is blackened behind. Nothing ſhows diſtinctly except gilt hands on a black or dark blue ground, or black on a very light ground. The figures are alſo generally much too large: they are really of no more uſe than twelve large ſpots would be; and the larger they are the more difficult it is to ſee where the hands are pointing. I have given a convenient rule for dividing the ſpaces of the figures and minutes in the Encyclopædia Treatiſe on clocks. Illumination ought never to be attempted in dials on the wall of a church, as nothing can be more ugly than an illuminated dial, or at any rate more impoſſible to make conſiſtent with church architecture. The moſt flagrant

caſe of the kind I know is at St. Mary's, Beverley, where they have actually ſtuffed a thing like a great green and yellow ſnuff-box into the heads of two of the tower windows for the ſake of enabling people to go out of doors at night and look what o'clock it is by the church. If the church was ſet on fire by ſome miſmanagement of the illuminating apparatus, one would be inclined to ſay that it ſerved them right. I take this opportunity of ſtating that I am not in any way reſponſible for the illumination or for the preſent pattern of the Weſtminſter clock dials (which are twenty-two feet in diameter), though I deſigned the clock itſelf. On the contrary I have ſaid throughout, that if you want large clock faces to be diſtinctly viſible and to look well by day, you muſt have a plain flat or concave ground, and give up the idea of making them viſible by night; except in the rare caſes where there are the means of doing the illumination by reflection, as on the Eaſt ſide of the Horſe Guards' clock; which however is badly done.

When clocks have quarters, they generally ſtrike them at the hour as well as at the three other quarters. But in the Fredericton cathedral clock I introduced the plan, which has ſince been generally followed both by Mr. Dent and Mr. Joyce, and even introduced into ſome clocks that were made before, of leaving out the quarter chimes at the hour. They are of no uſe there except under very ſpecial circumſtances; and when they are ſtruck on four bells they add conſiderably to the expenſe, as the work to be done by the clock is increaſed in the ratio of 6 to 10. Moreover the Cambridge chimes cannot be uſed at all without a peal of ten bells, if they are to play at the hour; becauſe they require the 1ſt, 2nd, 3rd, and 6th bells of a peal whereof the

hour bell is the 10th, if the hour is ſounded immediately after the quarters. But if not, they may be the 2nd, 3rd, 4th, and 7th of a peal of eight, the hour being ſtruck on the eighth, or indeed on any other bell you pleaſe, whether in the peal or out of it. If the great bell at York were not ſo bad, the proper thing would be to make the clock ſtrike the 1ſt, 2nd, and 3rd quarters on four of the large bells of the peal, and the hour alone on the great bell, which is much lower than the tenor of the peal. The great Weſtminſter clock has the full Cambridge quarters; but the additional expenſe there was of no conſequence, and the bells are made for the clock and not the clock for the bells, and there are no more than the five bells required for the purpoſe. Moreover, as the firſt blow of the hour in that clock is intended always to indicate exact Greenwich time within a ſecond at the fartheſt, it is convenient to give notice when it is coming, by the ſtriking of the quarters, ſo that people may be prepared to obſerve it.

There is not one church clock in a hundred which ſtrikes as powerfully as it ought to do; and yet by an ingenious miſmanagement of the hammer the clockmakers every now and then contrive to crack the bells. The tenor of the old Doncaſter peal was cracked by the hammer being ſet to ſtrike the bell with its edge inſtead of with a flat or ſlightly rounded face, though the hammer itſelf was not half the proper weight. Sometimes the hammer-ſpring is allowed to get looſe, and ſo the hammer lies upon the bell; which is alſo a capital plan for cracking it. Indeed there is no part of a church in which ſo much money has been thrown away through ſtingineſs in not doing the work properly, or in neglecting to keep it in order, as in the bell and clock

department. Of all things in the world to get by unlimited competition, a clock is about the moſt abſurd; as the people who order it ſcarcely ever know anything about the matter, and for anything they know they may be buying a much dearer article at £50 than at £100. Sometimes the architect undertakes to furniſh a ſpecification for a clock; which is about as uſeful as if the clockmaker were to furniſh a ſpecification for building a church. The truth is that ſpecifications are all nonſenſe, without the addition of inſpection by a competent judge when the work is done; and the art of clock-making is ſo little underſtood—eſpecially of large clocks—that it is hardly poſſible to get ſuch an inſpection. If you employ one clockmaker to paſs judgment on the work of another, the verdict will juſt depend on his own prejudices. I have not the ſmalleſt doubt that at leaſt nineteen clockmakers out of twenty would condemn in five minutes every one of the beſt clocks that have been made on the plan I have referred to during the laſt five years, though they have ſometimes gone for two or three months together without varying a ſingle ſecond, and a ſecond a month is conſidered by the makers of theſe clocks as much as they have any buſineſs to vary when once properly regulated. If you want a good clock therefore, there are generally only two ways of getting it: either ſelect one man whom you have good reaſon to rely upon, and whoſe uſual prices you can eaſily learn; or if you want a competition, confine it to the few makers on whom you have good reaſon to rely. I cannot undertake to ſay that there are none beſides the three I have mentioned, but I muſt ſay I know of no others, whoſe clocks are materially better than many that were made 50 years ago, or

who ſeem to know the difference between a ſcientific improvement in the principles of clockmaking, and the mere exhibition of manual dexterity in the 'finiſh' of the parts which do not the leaſt conduce to accuracy of going; and I am confirmed in this opinion by a memorial which was ſent by the Company of Clockmakers of London to the Board of Works for the purpoſe of preventing the adoption of the propoſed improvements in the Weſtminſter clock, or to ſpeak more plainly, to prevent its being made by Mr. Dent, whoſe name they abhor—and no wonder, conſidering the revolution he made in the conſtruction and the price of large clocks. They ſaid therein that the beſt public clock in the world was, not the Royal Exchange clock, which was pronounced the beſt by the Aſtronomer Royal in 1845, and has been further improved ſince; nor the caſt iron clock which received the firſt prize in the Exhibition of 1851 by the unanimous vote of all the three different bodies of jurors whoſe conſent was requiſite; but an old thirty hour clock at Paris, made in 1781. This ſhows how much the horological ſcience of that Worſhipful Company has advanced in the laſt three quarters of a century, by their own confeſſion. And here I leave them and the ſubject of church clocks for the preſent.

And here too I ſhould end theſe lectures, but that I am juſt in time to notice a ſmall controverſy that has been taking place ſince the firſt of them was printed, on the ſubject therein treated of; viz. the hopefulneſs or deſperation of the attempt to revive Gothic architecture.* In

* I wiſh I had not been too early to avail myſelf alſo of the authority of Mr. Ferguſſon in the many inſtances where I find that I agree with

addition to the arguments I have before mentioned, Mr. Petit has lately declared his deliberate and final opinion to be (in ſubſtance) that it muſt be given up as a bad job: 'I now feel (he ſays) that if genius, talent, and knowledge 'could have enſured ſucceſs, the revival would have been 'already complete.' Mr. Scott ſuggeſts in reply, in a letter to the *Builder*, that Mr. Petit's very rapid converſion from Gothic to Grecian taſte, or rather to the taſte for 'Railway 'ſheds with round-headed windows' (which appears to be his lateſt paſſion) has been at leaſt accelerated by his intercourſe with Mr. Winſton, who has been provoked into a cruſade againſt all Gothiciſm by the treatment that his views of glaſs painting have received from ſome of the cultivators of mediæval architecture. I know nothing about that matter, and ſhould have ſaid nothing about it, but that I cannot help concluding, from a remarkably ill-tempered little epiſtle in which Mr. Winſton endeavours to pay off Mr. Scott for preſuming to make ſuch a ſuggeſtion, that it is not altogether unfounded.

But whoever, or whatever, is to have the credit for this converſion to Italianiſm of an eminent writer on Gothic architecture and inculcator of Gothic principles, I adviſe thoſe who are diſpoſed to follow him, to look before they leap, and enquire whether their leader gives them a tolerably rational and conſiſtent account of his own plunge from Cathedrals into Railway Stations, and then to reflect

him. But moſt of this book was printed before I had read his Handbook of Architecture; which contains more information and better illuſtration in a ſmall ſpace and for a ſmall price than any book I know, and all given with a diſtinctneſs and preciſion, and an economy of words and abſence of ſentence-making, which is unuſually refreſhing.

a little further on the alternative he propoſes. His reaſon for giving up the Gothic buſineſs and going into the Italian line is (to ſtate it even more ſtrongly than he does for himſelf) that all the attempts at reviving Gothic art have hitherto been a dead failure. Well, be it ſo. But any man who thinks it worth while to deliberate before he decides will naturally aſk ſome ſuch queſtions as theſe:— Has Gothic art been cultivated long enough to give us a right to expect anything like a real revival yet? Has it been cultivated under favourable circumſtances, by men who would cultivate anything ſucceſsfully; or have nine out of ten of them and more been men who poſſeſs none of the qualities requiſite for ſuch an undertaking? Has it been kept back by other cauſes beſides the incompetence of moſt of the 'practitioners of Gothic architecture,' to borrow Mr. Winſton's deſignation? Again, we may reaſonably aſk, what uſed Mr. Petit himſelf before his converſion to ſay of the progreſs to be expected as yet? Has he ſhown good reaſon for his diſappointment with it? Were the churches of twenty years ago which he then pointed to as encouraging ſigns of progreſs better or worſe than are produced now?

Not to extend theſe queſtions, as we eaſily might and ought to do before we decide upon abandoning Gothic for either the Italian or the Locomotive ſtyle, Mr. Scott has made Mr. Petit anſwer the ſubſtance of them all himſelf by the words in which he addreſſed the architects of England in a book publiſhed only fifteen years ago. He then told the Gothic church builder that he muſt 'not grudge 'his time and labours to a taſk of which he cannot hope 'to reap the honour and the profit: let him be content to

'lay the foundations of an edifice which *a future generation* 'shall see completed: to toil for the recovery of hidden 'principles and lost harmonies, which the master spirit of '*a succeeding age* may awaken into life and perfection.' All this is, and was felt to be, when Mr. Petit published it in 1841, very good sense very well expressed; and yet in less than half the time that that 'future generation' of architects could have come into action, allowing them the utmost precocity, he turns round upon the movement which he had been leading and encouraging and urging to work on with patience, and exclaims that he is satisfied the whole thing is a mistake, because 'if genius, talent, and know-'ledge, could have ensured success,' complete success would have been obtained already, which it notoriously has not.

Where then is the evidence of all this genius, talent, and knowledge? Is it in the architects having done so much better than Mr. Petit expected a few years ago, or so much worse? He may choose his own alternative, and follow up the argument accordingly as he best can. Mr. Scott does not put this question, as he might have done, but he flatly repudiates the compliments by which Mr. Petit seeks to propitiate the architects at the expense of their art. He says it is only wonderful that modern churches are not worse than they are, seeing that 'not one in five is placed in 'the hands of those who care one jot about the success of 'the revival,' (as no architect can, who is equally ready to do Gothic or Grecian, as the majority of them are) . . . 'persons employed through local interest, through compe-'tition, and through the utter ignorance of the employers.' And he adds, with no less force than candour, that churches of his own building, and others, which Mr. Petit used a few

years ago to ſelect for commendation and as examples of the progreſs of the modern builders, are now conſidered by the architects who built them very little above mediocrity. It would not be eaſy to have a clearer ſign of improvement and advance in knowledge and taſte than this. Can Mr. Petit and his allies produce the evidence of ſimilar improvement in the Claſſical ſtyle from the days of Inigo Jones and Chriſtopher Wren to thoſe of Cockerell, Smirke, and Barry? Remember too that that ſtyle has had, not fifteen years to improve in, which is the utmoſt meaſure of Mr. Petit's patience—not a whole generation, the time for which he told us in 1841 we muſt, at the leaſt, be content to wait before we reaped any Gothic fruit—nor even the fifty or ſixty years that Gothic architecture has been ſtudied—but two whole centuries and more; during which the Claſſical ſtyle has been ſtudied, practiſed, lauded and encouraged, by architects and amateurs of all claſſes; for three quarters of the time without a rival, and for all the time without any rival except of late in the ſingle department of church building; and even in this latter period, for every thouſand pounds which have been laboriouſly raiſed and ſpent, too often with ill-judged economy and with no poſſibility of ſucceſs, in building Gothic churches, twenty times as much has been laviſhed out of public funds and private extravagance on every other kind of building, of which the Renaiſſance architecture has ſtill kept faſt hold.

Again, when the declaimers againſt the revival of Gothic ſay (as I ſhould) they are not ſatisfied with any modern Gothic church, do they mean that they are acquainted with ſome in which no particular deviation from ancient models can be diſcovered, but which nevertheleſs fail to produce the

ancient effect: in other words, that there is a fault somewhere, but it is impossible to say what it is? If they do, I should like very much to hear where those churches are. There are indeed plenty in which *everything* is so faulty that it may be hard to pick out anything in particular to which the failure can be attributed. But in the few that are worth criticising minutely I do not think it is very difficult to point out the particular defects. And if they can be pointed out they can be cured, or avoided for the future; and so improvement and progress can be made, and you have no right to pronounce the case desperate. Mr. Scott also very justly censures the folly and the mischief of persons who profess to lead the public taste, putting themselves in the front of a movement, which by the very nature of things requires and was acknowledged by those very persons to require a long course of years to bring any fruit to perfection; and then, like children who want a new toy, turning round and rending it because they have lost their patience or taken up a new hobby, just at the time when the old one is able to go alone without their guidance. Perhaps if the Gothic architects had been more ready to adopt Mr. Petit's Perpendicular views he might have felt less dissatisfied with their progress. The revival of the Perpendicular style is a hopeless attempt, I admit.

If he had come forward now and said, You modern Gothic architects have *not* 'toiled after the recovery of 'hidden principles and lost harmonies' as you might have done; and though you have indeed 'measured lines and 'angles' enough of the buildings of other days, you have too often put away your measures on the shelf and forgotten all about them in your practice, he might have been more

difficult to answer. But then that would not have answered his purpose, of throwing Gothic architecture overboard, with a graceful compliment to the architects by way of making it go over pleasantly. In short, Mr. Petit is a good-natured man, who has got tired or joked out of Gothic architecture. I am neither one nor the other. And therefore while he condemns the art and praises the artists, I uphold the art and find fault with the artists; not because I am insensible to the great advances they have made during the time that he has been falling into despair or getting up a new taste; but because I think they ought to have made more, and because I see many mistakes made regularly and systematically even by the best architects, which the examples constantly before their eyes might have taught them to avoid. And if I can see such mistakes, with the little attention that I have paid to this subject and with other things to do, both in the way of business and amusement, all having very little relation indeed to the fine arts, I cannot help concluding, that those who either make architecture their business, or who profess to devote themselves to the arts, might if they pleased find out many more faults, and the means of correcting them. And that, in my opinion, is not to be done, either in architecture or in anything else, by the method which now prevails in everything, of raging against 'systems,' which can't reform themselves, and praising individuals, who can but won't, but by censuring the particular bad thing and exposing the particular man who does it, without respect of persons, openly, distinctly, and unretractingly—first only taking care to be right.

THE END.

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